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FM 5-144

DEPARTMENT OF THE ARMY FIELD MANUAL

ENGINEER AMPHIBIOUS UNITS

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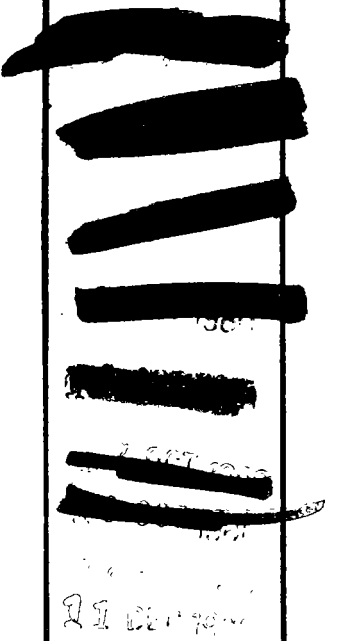

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ENGINEER AMPHIBIOUS UNITS

FM 5–144, 16 November 1966, is changed as follows:

1. Remove old pages and insert new pages as indicated below:

Old pages	New pages
1–1 and 1–2	1–1 through 1–2.1
2–1 through 2–4	2–1 through 2–3
3–1 and 3–2	3–1 through 3–2.1
4–1 through 4–12	4–1 through 4–11
5–1 through 5–6	5–1 through 5–6.1
6–3 through 6–5	6–3 through 6–6.1
6–9 and 6–10	6–9 through 6–10.1
6–23 and 6–24	6–23 through 6–24.1
8–13	8–13
P–25 and P–26	P25 through P–26.1
----------	R–1 and R–2

2. A star indicates new or changed material.

3. This transmittal sheet should be filed at the front of the manual for reference purposes.

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W. C. WESTMORELAND,
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FIELD MANUAL
No. 5–144

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *16 November, 1966*

ENGINEER AMPHIBIOUS UNITS

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

★1-1. Purpose and Scope

a. This manual provides guidance for commanders, staff officers, and others concerned with the planning, employment and operations of specialized engineer amphibious units. It provides commanders and staffs with principles, doctrine, and procedures concerning the missions, functions, capabilities, organization, and equipment provided by engineer amphibious units. This will permit employing authorities to use these specialized engineer elements with maximum effectiveness in support of combat forces conducting amphibious, shore-to-shore, or major river crossing operations.

b. Specialized engineer units included within the scope of this manual are—

(1) The Engineer Amphibious Brigade (Headquarters and Headquarters Company, TOE 5-401).

(2) The Engineer Amphibious Group (Headquarters and Headquarters Company, TOE 5-402).

(3) The Engineer Amphibious Battalion (TOE 5-405). Organic to each engineer amphibious battalion are—

(*a*) A Headquarters and Headquarters Company (TOE 5-406).

(*b*) Two (2) Engineer Amphibian Assault Companies (TOE 5-407).

(*c*) An Engineer Amphibious Company (Shore Party Company, TOE 5-408).

c. The contents of this manual are applicable to—

(1) General war, to include a consideration of the employment of and protection from nuclear munitions and chemical, biological, and radiological agents; and operations in nuclear, chemical, or biological environments.

(2) Limited war.

(3) Cold war, to include stability operations.

d. This manual is in consonance with the following International Standardization Agreements: STANAG 2096, Reporting Engineer Information in the Field; SOLOG 125, Minimum Potability Standards for Field Water Supply; and STANAG 2014, Operations Orders, Annexes to Operations Orders and Administrative/Logistics Orders.

1-2. Collateral References

A knowledge of the material contained in FM 31-11, FM 31-12, FM 31-13, and FM 60-30 is essential for a clear understanding of amphibious doctrine. For river crossing operations a knowledge of the material contained in FM 31-60 is also required. Certain portions of these manuals and U.S. Navy and Marine Corps manuals as related to the role of the engineer in amphibious operations have been repeated in this manual to provide a basis for a detailed discussion on the engineer organizations, doctrine, equipment, and employment in amphibious operations.

1-3. Terminology

a. A glossary of amphibious terminology is included in this manual. Common amphibious terms are also included in AR 320-5 and JCS Pub 1. Those terms which are repeatedly used in this manual are also explained in the test.

b. The terms *amphibious vehicle* (U.S. Army terminology) or *amphibian vehicle* or *amphibian* as used herein, are synonymous and are defined as "a wheeled or tracked vehicle capable of operating on both land and water." The

term *amphibious tractor* is also used in this manual and refers to amphibious vehicles of the landing vehicle, tracked (LVT) family.

1–4. Recommendations for Improvement

Users of this manual are encouraged to submit recommendations to improve its clarity or accuracy. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and permit complete evaluation. Comments should be forwarded direct to the Commanding Officer, U.S. Army Combat Developments Command Engineer Agency, Fort Belvoir, Virginia 22060. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, U.S. Army Combat Developments Command, to facilitate review and followup.

Section II. ENGINEER MISSION AND ROLE

1–5. Mission

The mission of engineer amphibious units is to provide—

a. A shore party headquarters for tactical units at corps, division, brigade, or battalion level.

b. Command and control of assigned and attached units.

c. Assistance in the planning and execution of amphibious, shore-to-shore, and major river crossing operations.

d. Amphibious mobility in lightly armored vehicles for tactical units engaged in the assault of hostile shores.

e. Support of internal defense operations as required.

1–6. Assignment of Engineer Amphibious Units

The formation of the assault elements of a landing force is dependent on such factors as the scheme of maneuver ashore, size of the landing force, hydrography, available beaches, and available amphibious vehicles and landing craft. In turn, the type of engineer amphibious unit assigned to the force is dependent on the size of the landing force and the number of beaches it will land on.

1–7. Army Component Force

a. No standard organization is applicable to all situations that may be encountered in an amphibious operation. The force organized for conduct of an amphibious operation is a task organization which is designated as an amphibious task force.

b. The army component of an amphibious task force is a task organization formed of army units assigned thereto for participation in an amphibious operation. This component is referred to as the army landing force.

c. The composition and size of the army landing force varies with the type amphibious operation, landing force mission, and operational environment.

d. The army landing force and each of its subordinate echelons must be balanced forces capable of independent operations for the execution of an amphibious attack. An amphibious attack by its very nature requires reinforcement of the basic tactical element at each echelon of the landing force to provide combat support and interim combat service support capability pending establishment of normal support systems in the objective area. The army meets the requirements of the amphibious operation through temporary internal reorganization of assault units and grouping of units as task organizations, to include certain units which by design provide specialized support needed in the assault of a hostile shore.

e. Engineer amphibious units are among the army units designed to provide specially qualified personnel and units for performance of combat support and interim combat service support functions as part of the army landing forces executing landings.

1–8. Doctrinal Considerations

A rigid concept of landing force employment or shore party requirements is not feasible; nor is it possible to identify a normal or typical

amphibious operation. To facilitate understanding of landing force employment and support requirements, however, the following are doctrinal considerations:

a. The Landing Force. The landing force may be of army, corps, division, or smaller size. As the smallest combined arms and services organization, the division normally is employed as the lowest landing force echelon for independent landings and execution of a scheme of maneuver ashore.

b. Brigade Landing Team (Bde LT). A brigade landing team is a task organization consisting of two or more BLT's, two of which normally will make simultaneous assaults on a beach. It has reinforcing combat support and combat service support elements to provide combat support and interim combat service support during the period it conducts independent tactical operations.

c. Battalion Landing Team (BLT). A battalion landing team is a task organization composed of a battalion level combat unit and the reinforcing combat and combat service support elements required for combat and interim combat service support during the period it conducts independent tactical operations.

d. The Reserve Brigade. Though scheduled for movement ashore over a secured and partially developed beach, the reserve brigade should be capable of assuming the assault mission of committed brigades. Planning must anticipate this contingency and the reserve should be provided with adequate attachments, including a shore party.

e. Joint Airmobile-Amphibious Operation. Occasionally the brigade surface landing by two BLT's may be coordinated with the airmobile assault of a third BLT. In this event, there will be a simultaneous requirement for an airmobile support party in addition to the two BLT shore parties on the beaches. Airmobile operations, however, are normal to land combat, hence supportable by organic divisional elements and units furnishing the helicopter lift. Engineer amphibious units seldom are involved directly in the airmobile support role. However, their organization, training, and equipment make them readily adaptable to formation of helicopter support teams (or airmobile support parties) that can establish, operate, and develop landing zones in beach areas.

1–9. Role of the Engineer Amphibious Units

a. The engineer amphibious unit commander and commanders of shore party component units serve as special staff assistants to the army landing force commander and commanders of subordinate landing force echelons during the planning for the amphibious attack.

b. The engineer amphibious units discussed in this manual provide command, control, and a nucleus of operating personnel trained and equipped for battalion, brigade, division, and corps shore parties.

c. In addition, the engineer amphibian assault companies of the engineer amphibious battalion provide means of ship-to-shore, shore-to-shore, and limited inland mobility to assault landing teams until such time as organic tactical carriers and vehicles are available to the tactical units in the beachhead. The use of amphibians which provide both limited armor protection and mobility makes possible a rapid, continuous movement from ships to initial objectives inland without delay on the landing beaches. The amphibians also are useful as a means of effecting delivery of critical supplies from ships directly to users inland from the beach, and for evacuation of medical patients, prisoners of war, and other personnel.

1–10. Duties of the Amphibious Engineer

The amphibious engineer plans and supervises—

a. Amphibious engineer support in offensive and defensive actions on the beach or in the beach support area.

b. The transportation of the assault elements of the landing force from ship-to-shore or shore-to-shore and inland, as required.

c. The transportation of elements engaged in a withdrawal or retrograde operation from shore-to-ship or shore-to-shore.

1–11. Combat and Combat Service Support

a. Engineer amphibious units provide only certain specialized elements required for formation of shore parties. Their organic units are organized, trained, and equipped to meet the need for skills and equipment not common to other army units. Engineer amphibious units, their mission and organization, are discussed in chapters 2, 3, and 4.

b. Since engineer amphibious units provide only the nuclei for shore parties, the shore party task organization at each echelon must include other combat support and combat service support units. Usually of the field army type, these units and their functions are discussed in chapter 5.

CHAPTER 2

THE ENGINEER AMPHIBIOUS BRIGADE

★2–1. Mission

The mission of the engineer amphibious brigade is to—

a. Command assigned and attached units.

b. Provide the shore party headquarters of a corps landing force during amphibious or shore-to-shore operations.

c. Provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossing of major rivers and other water barriers.

2–2. Assignment

The engineer amphibious brigade is normally assigned to a field army or independent corps, as required, for amphibious or shore-to-shore operations.

★2–3. Capabilities

a. At TOE Level 1, the engineer amphibious brigade provides—

(1) Command and control of assigned and attached units.

(2) Assistance to a corps commander and staff in planning for am amphibious or shore-to-shore operation.

(3) A corps shore party headquarters.

(4) Communications support to the corps shore party.

(5) Supervision for collection, evaluation, and dissemination of engineer intelligence information to include the preparation of terrain, hydrographic, and hydrologic reports.

b. At TOE Levels 2 and 3, operational capabilities are 90 percent and 80 percent, respectively, of Level 1.

c. The following additional capabilities may be provided, as required.

(1) Aerial liaison, reconnaissance, and transportation support to the corps shore party when augmented by appropriate teams from TOE 29–500.

(2) Multichannel communications facilities required for shore party operations are provided by appropriate teams from TOE 11–500.

(3) A liaison team, consisting of a U.S. Navy lieutenant commander and a yeoman, is provided by the U.S. Navy, when required.

d. This unit is not adaptable to a type B organization.

e. Individuals of this organization, except the medical personnel and the chaplain, can engage in effective coordinated defense of the unit's area or installation.

★2–4. Organization and Functions

The engineer amphibious brigade is a flexible organization. The number and composition of the units assigned or attached to it depend upon a specific mission. Normally, from two to four engineer amphibious groups are assigned or attached to the brigade. During an amphibious operation of corps size, a variety of combat and combat service support units are also attached to the engineer amphibious brigade as part of the shore party task organization for the duration of the assault phase of the operation. The headquarters and headquarters company of the engineer amphibious brigade, however, is a fixed organization (fig. 2–1). It consists of two elements as follows:

a. Brigade Headquarters. Brigade headquarters provides the command and staff personnel required to command and control the corps shore party and the assigned or attached engineer amphibius groups. It consists of the following personnel:

(1) Brigade commander.

(2) Deputy brigade commander.

(3) Executive officer.
(4) Operations officer S3.
(5) Adjutant S1.
(6) Aviation officer.
(7) Chaplain.
(8) Signal officer.
(9) Engineer equipment officer.
(10) Intelligence officer S2.
(11) Liaison officers (3 auth by TOE: 1–Arty, 1–Inf, 1–MP).
(12) Supply officer S4.
(13) Surgeon.
(14) Aide-de-camp.
(15) Sergeant major.

b. Headquarters Company. Headquarters company consists of a company headquarters and the personnel of the operating sections of the brigade.

(1) *Company headquarters.* The company headquarters provides the command, administration, supply, mess service, and equipment maintenance for the company.

(2) *Administration section.* The administration section is supervised by the brigade S1. It provides administrative services for the brigade headquarters and coordinates and supervises the administrative activities of assigned and attached units, as required.

(3) *Intelligence section.* The intelligence section plans and directs the collection, evaluation, interpretation, and distribution of intelligence and counterintelligence pertaining to amphibious operations. It assists the landing force staff in the acquisition and evaluation of beach information and other intelligence of concern to the shore party and ship-to-shore functions.

(4) *Operations section.* The operations section provides personnel to direct and coordinate organizational, training, and operational support activities. It assists the landing force in planning and in operations and insures compatibility of shore party organization. It plans and coordinates shore party landing sequences and beach support area development. In conjunction with the landing force G3, it assists in the preparation of plans for the use of engineer amphibian assault companies in the ship-to-shore movement. The operations section performs the duties of the civil affairs and psychological operations sections if civil affairs or psychological operations personnel are not assigned or attached. It coordinates with civil affairs units and the landing force G5 to insure appropriate actions are planned and taken toward civilians in the beach support area. This section contains a chemical officer who serves as the brigade chemical officer, and two enlisted chemical specialists.

(5) *Supply section.* The supply section plans, coordinates, and supervises supply, evacuation, transportation, transportation services, mess service, organizational maintenance, and related combat service support activities. It is not in the chain of supply but may inject itself as appropriate to insure continuity and effectiveness of combat service support.

(6) *Signal section.* The signal section is supervised by the brigade signal officer. This section provides the personnel and equipment required to coordinate and control the beach support area communications for the shore party and subordinate elements of the brigade.

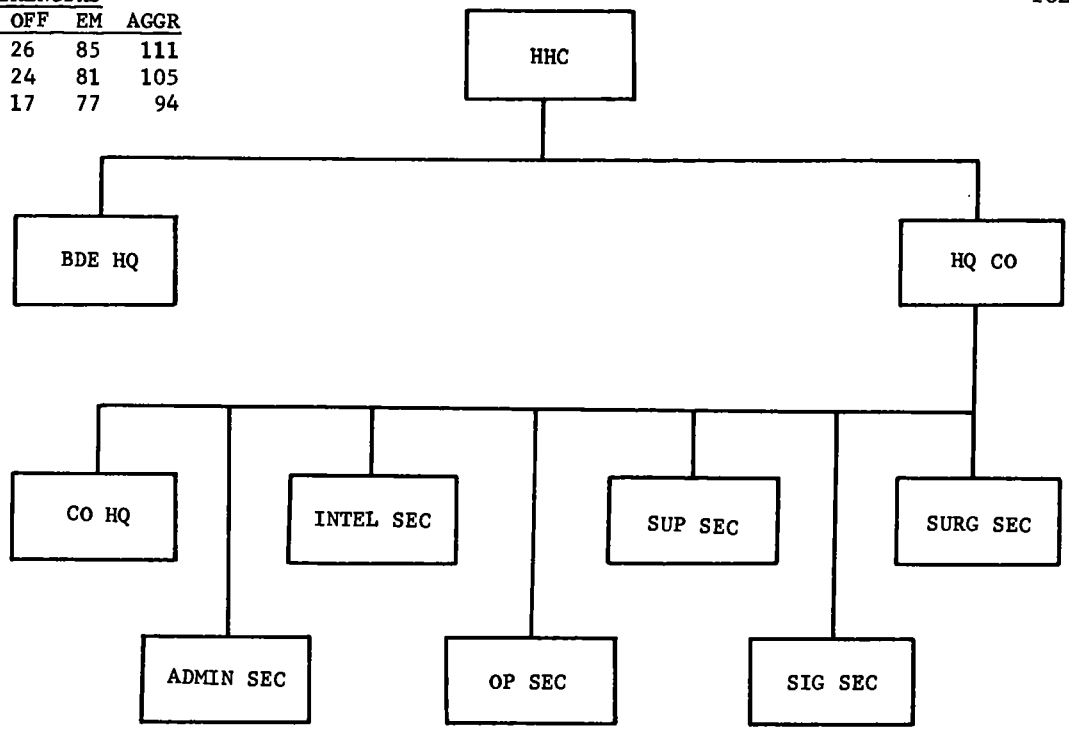
(7) *Surgeon's section.* The surgeon's section is supervised by the brigade surgeon. It is responsible for aiding the landing force staff in the planning of the treatment and evacuation of patients, beach sanitation, and on all medical matters.

★2–5. Employment

The headquarters and headquarters company, engineer amphibious brigade, contains the command and staff required when a corps shore party task organization is formed. The engineer amphibious brigade commander is designated as the corps shore party commander and commands all the units and personnel forming the corps shore party task organization. This organization varies in size depending on the number of divisions engaged in the assault landing, the number of beaches used, and the complexity of the operations. Thus, the corps shore party task organization, when formed, could number from 15,000 to 20,000 personnel composed of a variety of units, including naval units. The primary mission of the brigade, in an effort of this type, is to coordinate and control the beach support

TOE	STRENGTHS LEVEL	OFF	EM	AGGR
	1	26	85	111
	2	24	81	105
	3	17	77	94

TOE 5-401



★*Figure 2–1. Organizational chart, headquarters and headquarters company, engineer amphibious brigade.*

area (BSA) development initiated by the subordinate engineer shore party commands of the multiple divisions engaged in the landing. The corps shore party is responsible for combat support and combat service support of the tactical units and the development of the beach support area until relieved by a combat service support command. In addition, the engineer amphibious brigade provides guidance and assistance to the landing force commander in the planning and employment of the engineer amphibian assault companies of the engineer amphibious battalion in the amphibious mobility function. Relief and dissolution of the corps shore party task organization is dependent on the termination of the assault phase when there is sufficient expansion of the beachhead to accommodate full employment of the combat service support units assigned to the force.

★2–6. Basis of Allocation

One engineer amphibious brigade is assigned to a field army or independent corps, as required, for an amphibious or a shore-to-shore operation.

2–7. Mobility and Category

a. This unit is 100 percent mobile.

b. This unit is designated as a category I unit.

2–8. Equipment

Equipment allocations are shown in TOE 5–401. For a summarization of the communications equipment used by the brigade, see appendix N.

CHAPTER 3

THE ENGINEER AMPHIBIOUS GROUP

★3–1. Mission

The mission of the engineer amphibious group is to—

a. Command assigned and attached units.

b. Provide the shore party headquarters of a division landing force during amphibious or shore-to-shore operations.

c. Provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossing of major rivers and other water barriers.

d. Undertake and carry out the infantry combat missions of a headquarters and headquarters company, as required.

3–2. Assignment

The engineer amphibious group normally is assigned to a field army or independent corps, as required, to support a division size landing force in amphibious or shore-to-shore operations.

★3–3. Capabilities

a. At TOE Level 1, the engineer amphibious group provides:

(1) Command and control of assigned and attached units.

(2) A division shore party headquarters .

(3) Assistance to a division commander and staff in planning for amphibious or shore-to-shore operations.

(4) Communications support to the division shore party.

(5) Supervision for collection, evaluation, and dissemination of engineer intelligence information to include the preparation of terrain, hydrographic, and hydrologic reports.

b. At TOE Levels 2 and 3, operational capabilities are 90 percent and 80 percent, respectively, of Level 1.

c. The following additional capabilities may be provided, as required.

(1) Aerial liaison, reconnaissance, and transportation support to the division shore party when augmented by appropriate teams from TOE 29–500.

(2) Multichannel communications facilities required for shore party operations are furnished by appropriate teams from TOE 11–500.

(3) An officer and enlisted rank are placed on temporary duty with this unit by the Marine Corps as required for liaison during specific operations. This unit provides logistical support for these liaison personnel.

d. This unit is not adaptable to a type B organization.

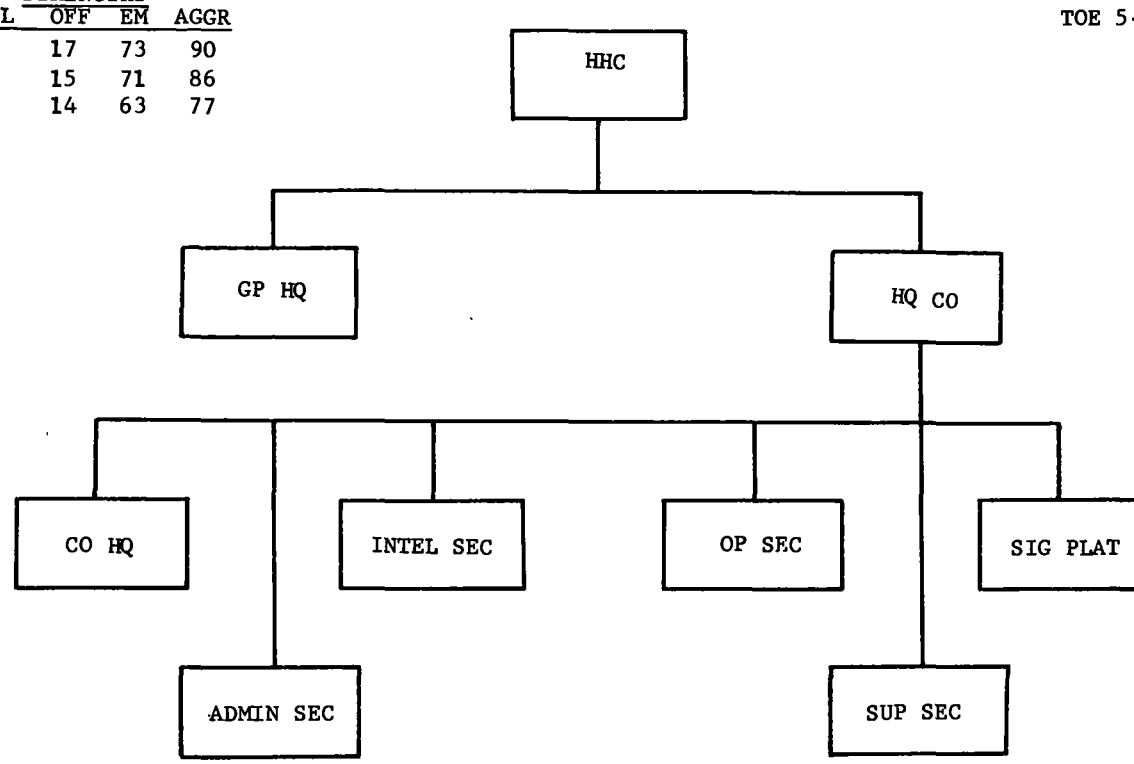
e. Individuals of this organization, except chaplain and medical personnel, can engage in effective, coordinated defense of the unit's area or installation.

★3–4. Organization and Functions

Like the engineer amphibious brigade, the engineer amphibious group is a flexible organization. The number and composition of the units assigned or attached to it depend upon a specific mission. Normally, from two to three engineer amphibious battalions are assigned or attached to the group for an amphibious operation of division size. During an amphibious operation of division size, a variety of combat and combat service support units are also attached to the engineer amphibious group as part of the division shore party task organization for the duration of the assault phase of the operation. The headquarters and headquarters company of the engineer amphibious group, however, is a fixed organization (fig. 3–1). It consists of two elements as follows:

TOE	LEVEL	STRENGTHS OFF	EM	AGGR
	1	17	73	90
	2	15	71	86
	3	14	63	77

TOE 5-402



★*Figure 3–1. Organizational chart, headquarters and headquarters company, engineer amphibious group.*

a. Group Headquarters. Group headquarters provides the command and staff personnel required to command and control the division shore party and the assigned or attached engineer amphibious battalions. It consists of the following personnel:

(1) Group commander.
(2) Executive officer.
(3) Adjutant S1.
(4) Intelligence officer S2.
(5) Operations officer S3.
(6) Supply officer S4.
(7) Aviation officer.
(8) Surgeon.
(9) Chaplain.
(10) Signal officer.
(11) Engineer equipment officer.
(12) Sergeant major.

b. Headquarters Company. Headquarters company consists of a company headquarters and the personnel of the operating sections of the group.

(1) *Company headquarters.* The company headquarters provides the command, administration, supply, mess service, and equipment maintenance for the company.

(2) *Administration section.* The administration section is supervised by the group S1. It provides administrative services for the group headquarters and coordinates and supervises the administrative activities of assigned and attached units, as required.

(3) *Intelligence section.* The intelligence section is supervised by the group S2 and performs, at group level, functions similar to the brigade intelligence section, previously discussed.

(4) *Operations section.* The operations section is supervised by the operations officer. It performs, at group level, functions similar

to the brigade operations section, previously discussed.

(5) *Supply section.* The supply section is supervised by the group supply officer. It performs, at group level, functions similar to the brigade supply section, previously discussed.

(6) *Signal platoon.* The signal platoon consists of the personnel and equipment required to install, operate, and maintain the communications required by a division shore party and control element. A team from this platoon may be attached temporarily to each brigade landing team shore party to provide supplementary communications support.

3–5. Employment

The headquarters and headquarters company, engineer amphibious group, contains the command and staff required when a division shore party task organization is formed. The engineer amphibious group commander is designated as the division shore party commander and commands all the units and

personnel forming the division shore party task organization. This organization varies in size depending on the plan for landing; the number of beaches used, and the complexity of the operation. The primary mission of the engineer amphibious group, in an effort of this type, is to coordinate and control the beach support area development initiated by the subordinate engineer shore party of brigade size. Thus division shore parties are responsible for combat support and combat service support of the tactical units and the development of the beach support area until relieved by a combat service support command. In addition, the engineer amphibious group provides guidance and assistance to the landing force or division commander in the planning and employment of the engineer amphibian assault companies of the engineer amphibious battalion in the amphibious mobility function. Relief and dissolution of the division shore party task organization is dependent on the termination of the assault phase.

3–6. Basis of Allocation

One engineer amphibious group is assigned to a division of a corps or to a separate division task force, as required, for an amphibious or shore-to-shore operation.

3–7. Mobility and Category

a. This unit is 100 percent mobile.

b. This unit is designated as a category I unit.

3–8. Equipment

Equipment allocations are shown in TOE 5–402. For a summarization of the communications equipment used by the group, see appendix N.

CHAPTER 4

THE ENGINEER AMPHIBIOUS BATTALION

Section I. GENERAL

★4–1. Mission

The mission of the engineer amphibious battalion is:

a. To command assigned and attached units.

b. To command, control, and provide the nucleus of the shore party for a brigade-size landing force during amphibious or shore-to-shore operations.

c. To provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossing of major rivers and other water barriers.

d. To provide tactical amphibian mobility for dismounted combat units in the passage of water barriers.

e. To undertake and carry out infantry combat missions when required. (When properly augmented. See para 6–50.)

4–2. Assignment

The engineer amphibious battalion normally is assigned to a field army with attachment to an engineer amphibious group.

★4–3. Capabilities

a. At TOE Level 1, the engineer amphibious battalion unit provides:

(1) Command and control of assigned and attached units.

(2) The nucleus of a brigade shore party.

(3) Assistance to a brigade commander and staff in planning for an amphibious or shore-to-shore operation.

(4) Lightly armored amphibian mobility for 2040 dismounted assault troops when equipped with the landing vehicle, tracked, personnel (LVTP 5).

(5) Engineer amphibious combat support for two battalion landing team (BLT) beach areas or a consolidated brigade beach support area.

(6) Engineer reconnaissance and intelligence for the battalion and the supported brigade-size force.

(7) Engineer intelligence, including terrain data, to the engineer amphibious group and/or engineer amphibious brigade.

(8) Medical support to a brigade landing force of two battalion landing teams. (Unit level medical support is provided to assigned engineer units by the medical personnel assigned to the battalion. When augmented by other medical units, medical support is provided to other units as required. See para 5–8*d*(1).)

(9) Establishment and operation of signal facilities for two BLT shore parties or one consolidated brigade beach support area.

(10) Direct support maintenance for organic engineer equipment, wheel and track vehicles, and amphibious lighters.

b. At TOE Levels 2 and 3, operational capabilities are 90 percent and 80 percent, respectively, of Level 1.

c. This unit is not adaptable to a type B organization.

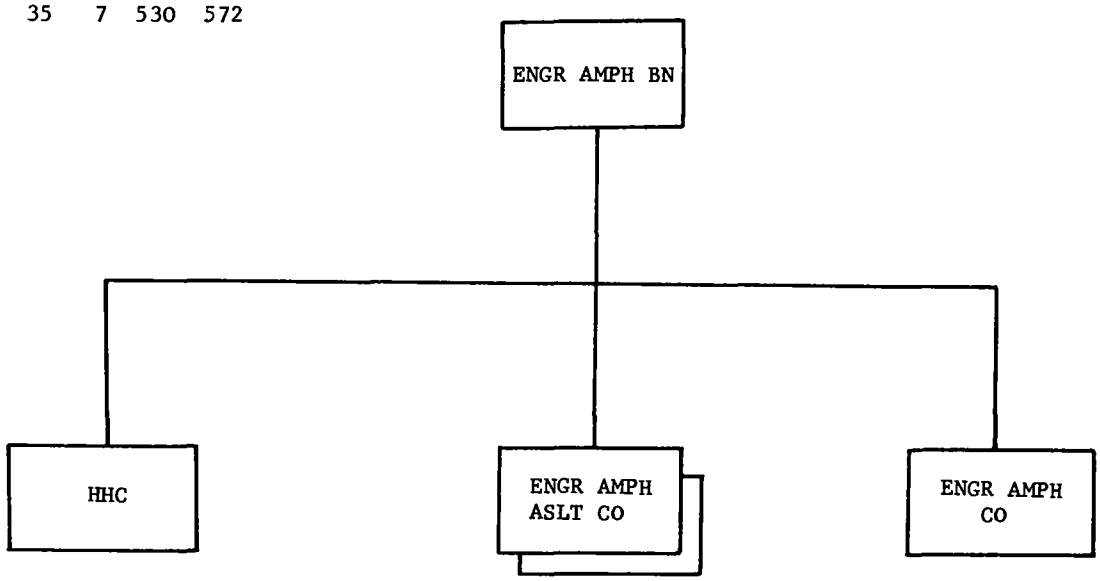
d. Individuals of this unit, except chaplain and medical personnel, can engage in effective, coordinated defense of the unit's area or installation.

4–4. Organization

The engineer amphibious battalion (fig. 4–1) is organized under TOE 5–405 and consists of—

TOE	STRENGTHS			
LEVEL	OFF	WO	EM	AGGR
1	38	7	671	716
2	36	7	602	645
3	35	7	530	572

TOE 5-405



★*Figure 4–1. Organizational chart, engineer amphibious battalion.*

a. A headquarters and headquarters company (see para 4–9—4–16).

b. Two engineer amphibian assault companies (see para 4–17—4–24).

c. An engineer amphibious company (see para 4–25—4–32).

4–5. Employment

In an amphibious operation, the engineer amphibious battalion is responsible for the ship-to-shore and inland mobility of assault troops and for the operation of shore parties for two battalion landing teams which are eventually consolidated into a shore party for a brigade landing team. It is capable of transporting in one lift, 2,040 troops in lightly armored amphibious vehicles for the assault movement to the beach and for limited distances inland. In addition, it contains personnel and equipment to perform reconnaissance, mine clearance, and beach improvement.

4–6. Basis of Allocation

Normally one engineer amphibious battalion is provided for each brigade landing team.

4–7. Mobility and Category

a. The engineer amphibious battalion and its organic units are 100 percent mobile.

b. The engineer amphibious battalion and its organic companies are designated as category I units (reference Unit Categories, AR 320–5).

4–8. Equipment

For a discussion of the equipment organic to the battalion, see the discussions under the equipment paragraph for the individual organic companies.

Section II. HEADQUARTERS AND HEADQUARTERS COMPANY, ENGINEER AMPHIBIOUS BATTALION

★4–9. Mission

The mission of headquarters and headquarters company, engineer amphibious battalion is to:

a. Command assigned and attached units.

b. Provide the command, control, and nucleus for the shore party of a brigade size landing force during amphibious or shore-to-shore operations.

c. Provide assistance in planning and executing amphibious or shore-to-shore operations including landings on a hostile shore and crossing of major rivers and other water barriers.

d. Undertake and carry out the combat mission of an infantry headquarters and headquarters company, as required. (When properly augmented. See para 6–50.)

4–10. Assignment

Headquarters and headquarters company is organic to an engineer amphibious battalion.

★4–11. Capabilities

a. At TOE Level 1, headquarters and headquarters company provides:

(1) Command and control of assigned and attached units.

(2) The nucleus of a brigade shore party headquarters.

(3) Assistance to a brigade commander and staff in planning for an amphibious or shore-to-short operation.

(4) Reconnaissance within the beach support area.

(5) Breaching natural and man-made beach obstacles and hasty removal of mines on the beach.

(6) The following medical support to a brigade landing force of two battalion landing teams (when augmented by other medical units. See paragraph 5–8*d*(1)).

(*a*) Emergency medical treatment, coordination and supervision of evaluation to off-shore medical facilities. When required, additional litter bearer support may be provided from a medical collecting company, TOE 8–129.

(*b*) The establishment and operation of aid stations within two BLT beach support areas.

(7) Direct support maintenance for engineer equipment, wheel and track vehicles, and amphibious lighters organic to the engineer amphibious battalion.

b. At TOE Levels 2 and 3, operational capabilities are 90 percent and 80 percent, respectively, of Level 1.

c. This unit is not adaptable to a type B organization.

d. Individuals of this organization, except chaplain and medical personnel, can engage in effective, coordinated defense of the unit's area or installation.

★4–12. Organization and Functions

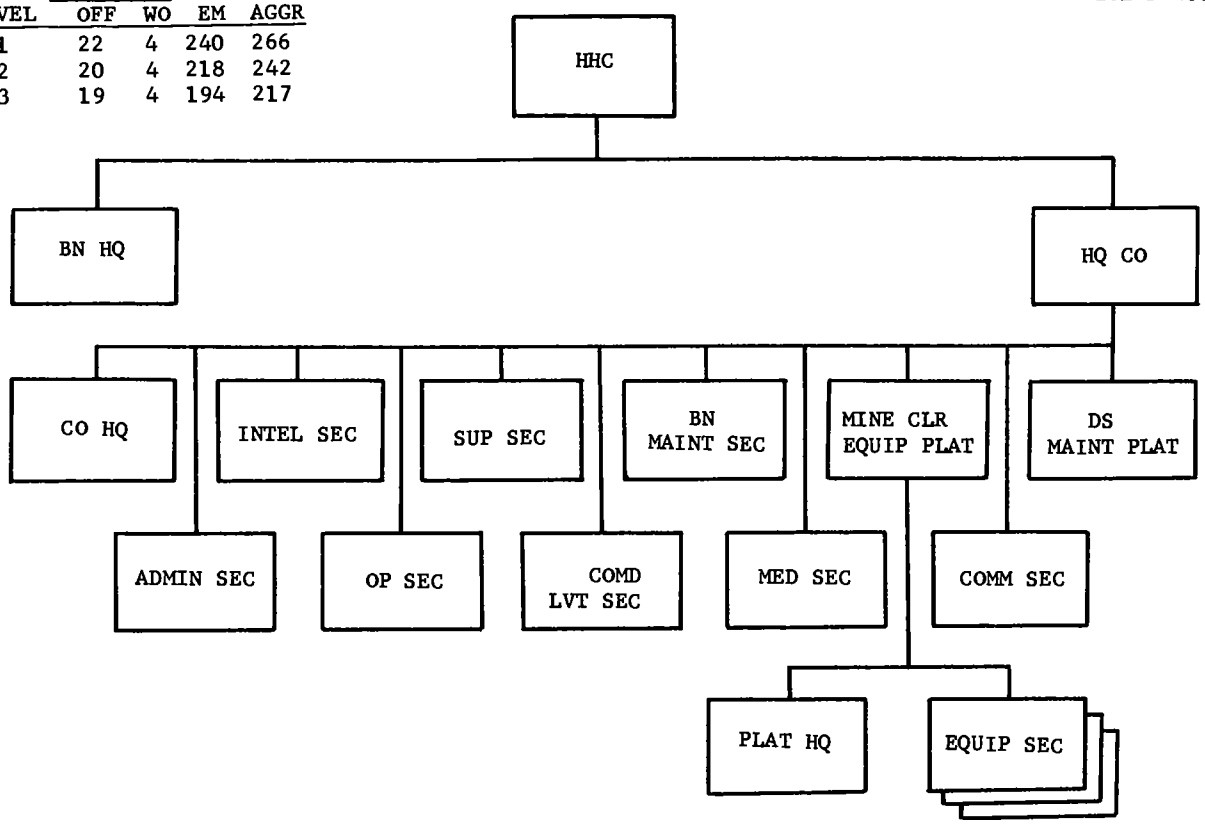
The headquarters and headquarters company, engineer amphibious battalion, is organized under TOE 5–406 (fig. 4–2). It consists of two elements as follows:

a. Battalion Headquarters. Battalion headquarters provides the command and staff personnel required to command and control a brigade landing team shore party and the operation of the amphibious vehicles which provide ship-to-shore and inland mobility for the assault elements of the brigade landing team. Battalion headquarters consists of the following personnel:

(1) Battalion commander.
(2) Executive officer.
(3) Adjutant S1.
(4) S2.
(5) S3.
(6) S4.
(7) Surgeon.
(8) Engineer equipment officer.
(9) Signal officer.
(10) Chaplain.
(11) Liaison officer (4).
(12) Sergeant major.

TOE	LEVEL	STRENGTHS OFF	WO	EM	AGGR
	1	22	4	240	266
	2	20	4	218	242
	3	19	4	194	217

TOE 5-406



★*Figure 4–2. Organizational chart, headquarters and headquarters company, engineer amphibious battalion.*

b. Headquarters Company. Headquarters company consists of a company headquarters and the personnel of the operating sections of the battalion:

(1) *Company headquarters.* Company headquarters provides command, administration, mess, and supply for the company. It also provides organizational maintenance for the equipment organic to the company.

(2) *Administration section.* The administration section operates a unit personnel section and performs other administrative and personnel tasks normal to a battalion administrative section.

(3) *Intelligence section.* The intelligence section collects, evaluates, and interprets engineer information, and produces and distributes engineer intelligence, counterintelligence, estimates and plans. It advises the commander and subordinate units of enemy situations and capabilities. Six underwater specialists are included in this section to provide hydrographic data and to assist in the clearance of underwater obstacles.

(4) *Operations section.* The operations section directs and coordinates staff functions relative to the organization, training, and combat operations of an amphibious organization. It is also responsible for the preparation of operational orders, and loading and unloading plans.

(5) *Supply section.* The supply section is responsible for the planning, coordination and supervision of all supply matters in the battalion.

(6) *Command LVT section.* The command LVT section consists of six LVTC's and the personnel to operate them. These vehicles

provide lightly armored transportation for the command elements of the engineer amphibious battalion and the supported assault brigade. The vehicles may be used as mobile command posts or communications centers.

(7) *Battalion maintenance section.* The battalion maintenance section provides backup organizational maintenance for the equipment organic to the battalion.

(8) *Medical section.* The medical section, when augmented by medical and surgical unit attachments, operates the aid and evacuation stations located in the beach support area and provides routine medical service to the engineer battalion. (See para 5–8*d*(1).)

(9) *Mine clearance equipment platoon.* This platoon consists of special purpose engineer amphibious vehicles (LVTE's) and the personnel to operate them. For a more detailed discussion of the duties of this platoon, see paragraphs 7–32 through 7–45.

(10) *Communications section.* The communications section provides the personnel and equipment required for the effective command and control of the battalion operations and missions. It provides communications direction and supervision for a brigade landing team shore party and, when required, augments the communications for the separate battalion landing team shore parties.

(11) *Direct support maintenance platoon.* This platoon provides direct support maintenance for the engineer equipment, wheeled and tracked vehicles, and amphibious lighters organic to the battalion.

4–13. Employment

The headquarters and headquarters company, engineer amphibious battalion, contains the command and staff necessary to man a brigade landing team shore party. The battalion commander is designated as the brigade shore party commander and commands all the units and personnel forming the brigade landing team shore party. In addition, the commander and staff provide advice and assistance to the tactical headquarters in the employment of the amphibious vehicles and on other engineer matters.

4–14. Basis of Allocation

One headquarters and headquarters company is organic to each engineer amphibious battalion.

4–15. Mobility and Category

a. This unit is 100 percent mobile.

b. This unit is designated a category I unit (reference Unit Categories, AR 320–5).

4–16. Equipment

a. The equipment of this company consists of amphibious vehicles (discussed in *b* below), wheeled vehicles, communications equipment, maintenance and repair equipment, and equipment needed for housekeeping. Armament consists of machineguns, rifles and pistols. For a detailed listing of the equipment, see TOE 5–406.

b. There are two types of amphibious vehicles organic to the headquarters and headquarters company, engineer amphibious battalion, as follows:

(1) Landing vehicle, tracked, command (LVTC or LVTPC). This vehicle is a lightly armored amphibious assault vehicle. It is used as a command vehicle for both the tactical units and for the engineer amphibian assault units. It may also be used as a mobile fire support coordination center or mobile observation post. There are six LVTC's organic to the headquarters and headquarters company. For a description and illustration of this vehicle, see appendix C. For a discussion of the communications equipment organic to this vehicle see appendix N.

(2) Landing vehicle, tracked, engineer (LVTE). This vehicle is a lightly armored amphibious assault engineer vehicle. It is used to breach minefields and destroy obstacles during the amphibious assault. There are ten LVTE's organic to the headquarters and headquarters company. For a description and illustration of this vehicle, see appendix D. For a discussion of the communications equipment used in this vehicle, see appendix N. For a discussion of its employment, see paragraphs 7–32 through 7–45.

Section III. THE ENGINEER AMPHIBIAN ASSAULT COMPANY, ENGINEER AMPHIBIOUS BATTALION

★4–17. Mission

The mission of the engineer amphibian assault company is—

a. To provide tactical amphibian mobility for dismounted combat units in the passage of water barriers.

b. To provide skills and equipment to train other units assigned amphibious missions in amphibious or shore-to-shore operations including landings on a hostile shore and crossings of major rivers and other water barriers.

c. To undertake and carry out infantry combat missions, when required. (Provides armored personnel carriers (LVT's) for a mechanized force.)

4–18. Assignment

The engineer amphibian assault company is organic to the engineer amphibious battalion.

★4–19. Capabilities

a. At TOE Level 1 the engineer amphibian assault company provides:

(1) Lightly armored amphibian mobility for 1020 dismounted assault troops when equipped with the LVTP–5. Elements may be attached to one or more battalion landing teams in amphibious or shore-to-shore operations.

(2) Machinegun fire support in the assault phase of an amphibious or shore-to-shore operation.

(3) Local security and supplements beach support area defense as required.

b. At TOE Levels 2 and 3, operational capabilities are 90 percent and 80 percent, respectively, of Level 1.

c. This unit is not adaptable to a type B organization.

d. Individuals of this organization can engage in effective, coordinated defense of the unit's area or installation.

★4–20. Organization and Functions

The engineer amphibian assault company is organic to the engineer amphibious battalion and is organized under TOE 5–407 (fig. 4–3). It consists of a company headquarters, a maintenance section and three equipment platoons which perform the following functions.

a. Company Headquarters. The company headquarters consists of the necessary personnel and equipment by which the company commander exercises command, control, and coordination of training, administration, and company operations. It provides mess, administration, and supply for the company. It also provides organizational maintenance for radios and armament organic to the company.

b. Maintenance Section. The maintenance section contains the personnel and equipment necessary to perform organizational maintenance on equipment organic to the company. It also performs recovery operations for the company and for this purpose has one landing vehicle, tracked, recovery (LVTR).

c. Equipment Platoon. Each of the three equipment platoons consists of a platoon headquarters and three equipment sections.

(1) *Platoon headquarters.* Platoon headquarters provides the command and control elements for the platoon. Each platoon can transport 340 assault troops in one lift for a ship-to-shore, or inland movement. There is one LVTP5 in platoon headquarters.

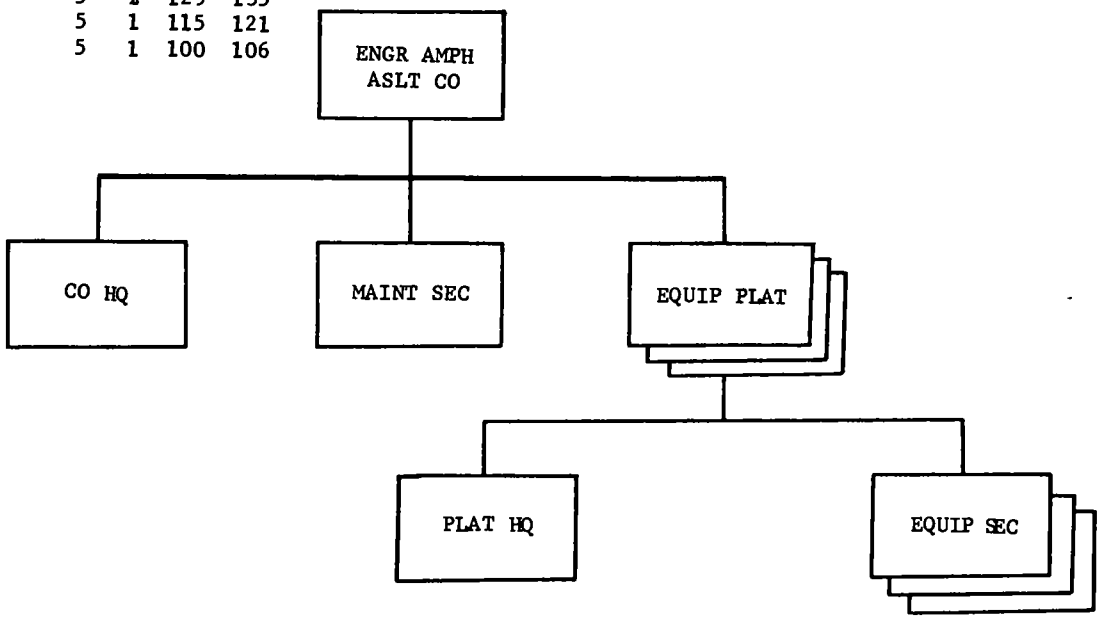
(2) *Equipment section.* Each of three equipment sections has three LVTP5's and the necessary operators to man these vehicles.

4–21. Employment

The engineer amphibian assault company is employed to provide lightly armored ship-to-shore, shore-to-shore, and inland movement for assault forces. Ideally, one engineer amphibian assault company provides this support to one assault battalion landing team. However, the company may be segmented and its platoon may support smaller assault landing teams. With its lightly armored LVTP5's (see app B), this unit is employed in the initial waves of the assault. After landing, it continues inland with the assault forces until tanks and armored personnel carriers are landed to support the assault forces. When released, the company

TOE LEVEL	STRENGTHS OFF	WO	EM	AGGR
1	5	1	129	135
2	5	1	115	121
3	5	1	100	106

TOE 5-407



★*Figure 4–3. Organizational chart, engineer amphibian assault company, engineer amphibious battalion.*

or its organic units return to the beach support area and revert to the control of the engineer amphibious battalion. The company and its vehicles are then used for beach security or for the transportation of personnel and cargo and for the evacuation of patients between ship and shore. The two engineer amphibian assault companies are given the letter designation of "A" and "B". For a more detailed discussion of the employment of the engineer amphibian assault company, see chapters 7, 8, and 9. For a discussion of training, see appendix F.

4–22. Basis of Allocation

Two engineer amphibian assault companies are organic to each Engineer Amphibious Battalion TOE 5–405.

4–23. Mobility and Category

a. This unit is one hundred percent mobile when the LVTP is used for a combined land and water movement. It is approximately forty percent mobile when only the wheeled vehicles are used for a land movement.

b. This unit is designated a category I unit (reference Unit Categories, AR 320–5).

★4–24. Equipment

a. The equipment of this company consists mainly of the amphibious tractors (discussed in *b* below) employed in accomplishing the company mission. In addition, the company has wheeled vehicles, communication and maintenance equipment, and housekeeping equipment. Armament for the company consists of expendable rocket launchers, rifles, and pistols, in addition to the machineguns with which the amphibious tractors are equipped. For a detailed listing of the equipment, see TOE 5–407.

b. There are two types of amphibious vehicles organic to the engineer amphibian assault company as follows:

(1) Landing vehicle, tracked, personnel (LVTP5). The LVTP5 (fig. 4–4) is a lightly

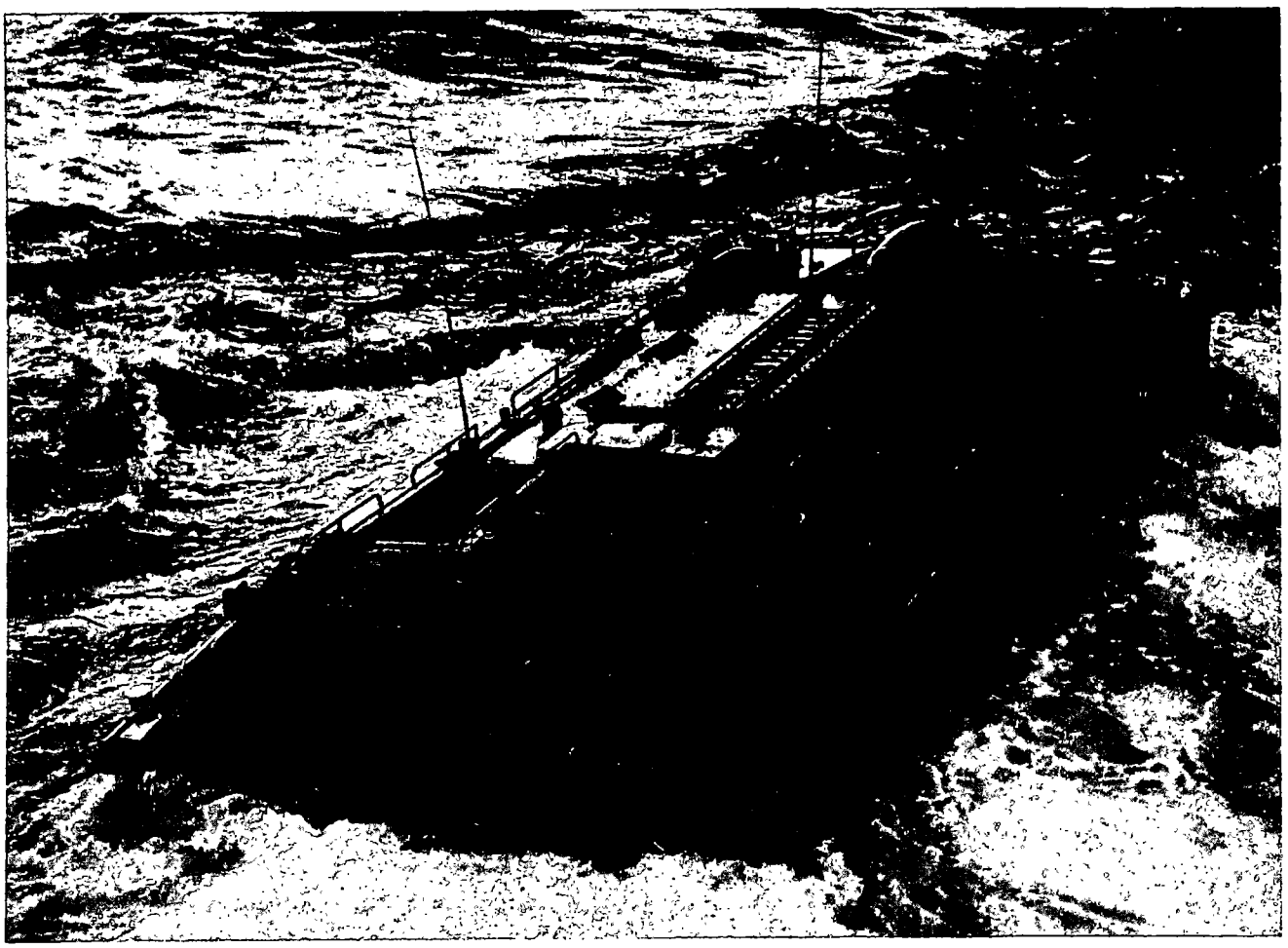


Figure 4–4. LVTP 5 afloat after being launched from a landing ship.

armored amphibious assault vehicle used to carry assault personnel or cargo. Each LVTP5 lifts a maximum of 34 combat loaded troops under combat conditions. The optimum passenger capacity is 25 combat loaded personnel. There are 30 LVTP5's organic to each engineer amphibian assault company. Although the primary mission of the LVTP5 is to provide amphibious and limited inland mobility for assault personnel, the vehicle is versatile in its usage. It may also be used as a cargo carrier. When employed as a cargo carrier it can carry six tons of cargo afloat and nine tons on land. The vehicle is described and illustrated in appendix B which also lists typical waterborne and land cargo loads for this vehicle. It may also be used to transport mortars, mortar ammunition, and crews, and to transport or tow the 105-mm howitzer complete with crew and ammunition (see app M). Finally, it may be rigged with the LVT ambulance kit and perform as a litter ambulance with amphibious capabilities. For a discussion of the communications equipment organic to this vehicle, see appendix N.

(2) Landing vehicle, tracked, recovery (LVTR). The LVTR is a lightly armored amphibious vehicle used for recovering and repairing disabled vehicles. It provides the principal maintenance capability for the engineer

amphibian assault company. One LVTR is organic to each company. For a description and illustration of this vehicle, see appendix E. For a discussion of maintenance and employment of the LVTR, see appendix I.

Section IV. THE ENGINEER AMPHIBIOUS COMPANY, ENGINEER AMPHIBIOUS BATTALION

★4–25. Mission

The mission of the engineer amphibious company is:

a. To provide the control and nucleus for the shore party of a brigade size landing force during amphibious or shore-to-shore operations.

b. To provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossings of major rivers and other water barriers.

c. To undertake and carry out combat missions of an infantry unit when required. (When properly augmented. See para 6–50.)

4–26. Assignment

The engineer amphibious company is organic to the engineer amphibious battalion.

★4–27. Capabilities

a. At TOE Level 1 the engineer amphibious company provides:

(1) Command, staff planning, and supervision of the operations of two battalion landing team (BLT) shore parties, or one brigade landing team shore party.

(2) Engineer amphibious combat support for two BLT beach areas or a consolidated brigade beach support area as follows:

(*a*) Breaching extensive natural and man-made beach obstacles.

(*b*) Detecting and removing mines within the beach support area.

(*c*) Constructing and maintaining beach exits.

(*d*) Destroying enemy beach fortifications.

(*e*) Performing other engineer work necessary to develop and expand beach capacities.

(*f*) Operational control of beaches.

(*g*) Providing local security for the beach support area.

(*h*) Erecting obstacles in the beach area.

(3) Establishment and operation of the following signal facilities for two BLT shore parties or one consolidated brigade beach support area.

(*a*) Message center, cryptographic, and radio teletypewriter service.

(*b*) Manual telephone switchboard and local telephone service.

(*c*) CW, and AM and FM voice radio stations in the BLT and brigade radio nets.

(*d*) Trunk line and signal center service to shore party elements.

(*e*) Visual signals consisting of semaphore and blinkers for shore-to-ship and shore-to-shore communications.

b. At TOE Levels 2 and 3, operational capabilities are 90 percent and 80 percent, respectively, of Level 1.

c. This unit is not adaptable to a type B organization.

d. Individuals of this organization can engage in effective, coordinated defense of the unit's area or installation.

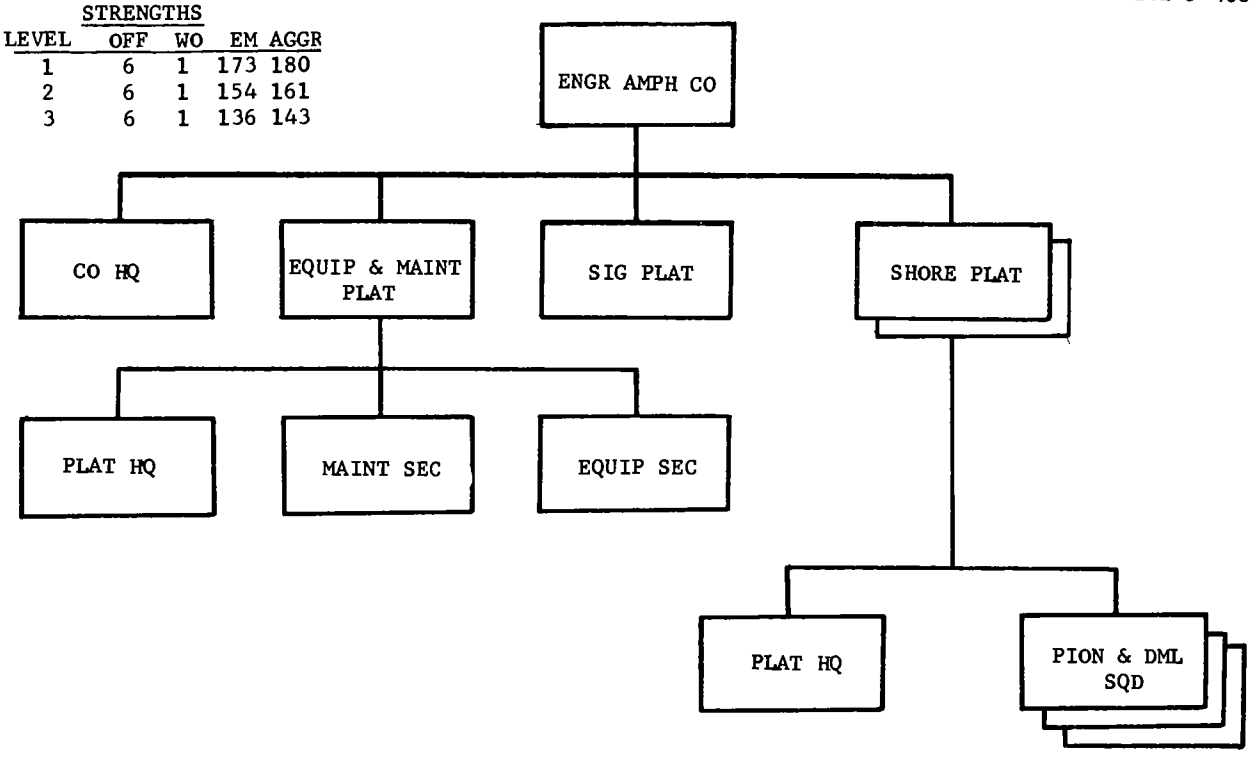
★4–28. Organization and Functions

The engineer amphibious company is organic to the engineer amphibious battalion and is organized under TOE 5–408 (fig. 4–5). It consists of a company headquarters, a signal platoon, an equipment and maintenance platoon and two shore platoons, which perform the following functions:

a. Company Headquarters. The company headquarters consists of the necessary personnel and equipment by which the company commander exercises command, control, and coordination of training programs and company operations. It provides mess, administration, and supply for the company. It also provides organizational maintenance for the armament organic to the company.

TOE 5-408

TOE	LEVEL	STRENGTHS OFF	WO	EM	AGGR
	1	6	1	173	180
	2	6	1	154	161
	3	6	1	136	143



★*Figure 4–5. Organizational chart, engineer amphibious company, engineer amphibious battalion.*

b. Signal Platoon. The signal platoon provides the communications personnel and equipment required to maintain an effective communications system for two battalion landing team shore parties and one brigade landing team shore party. Communications support provided includes:

(1) Message center and cryptographic support.

(2) Manual telephone switchboard and local telephone support.

(3) Teletypewriter, AM (CW and voice), and FM voice radio stations.

(4) Trunkline and signal center support.

(5) Organizational maintenance for organic radio equipment of the company.

c. Equipment and Maintenance Platoon. The equipment and maintenance platoon consists of a platoon headquarters, a maintenance section, and an equipment section. Platoon headquarters contains the command and supervisory personnel of the platoon. The maintenance section contains the personnel and equipment necessary to provide organizational maintenance for the equipment of the company. The equipment section contains the operators and equipment necessary to provide limited equipment support to the two shore platoons of the company.

d. Shore Platoons. Each of the two shore platoons consists of a platoon headquarters and three pioneer and demolition squads. The shore platoons form the nuclei around which the attached elements of a battalion landing team shore party are organized. They perform beach reconnaissance, mark the beaches, and provide general engineer amphibious combat support.

4–29. Employment

a. The engineer amphibious company provides the control elements of a shore party for an assault brigade employing no more than

two battalion landing teams assaulting two separate or adjoining beaches. The two shore platoons form the nuclei of the shore parties for each of two BLT (numbered) beaches which may subsequently be consolidated into a brigade landing team (colored) beach. By itself the engineer amphibious company can provide:

(1) Reconnaissance of the beach area.

(2) Reduction of beach obstacles.

(3) Erection of beach markers.

(4) Combat construction on the beach and in the beach support area.

(5) Assistance to the assault troops in landing on and crossing the beach.

b. When augmented by the attached troops to form the shore party task organization, it can provide all necessary combat support and combat service support required on the beach and in the beach support area.

c. Normally the platoon leaders of the two shore platoons are designated as the shore party commanders of the two BLT shore parties. In some instances, however, the company commander and the executive officer of the engineer amphibious company may be designated as the shore party commanders of the two BLT shore parties. When the BLT shore parties are consolidated into a brigade shore party the company commander assists the battalion commander of the engineer amphibious battalion who is the brigade landing team shore party commander. The engineer amphibious company is given the letter designation of "C". For a more detailed discussion of the employment of the engineer amphibious company, see chapters 5 and 6.

4–30. Basis of Allocation

One engineer amphibious company is authorized for each engineer amphibious battalion.

4–31. Mobility and Category

a. This unit is one hundred percent mobile.

b. This unit is designated a category I unit (reference Unit Categories, AR 320–5).

4–32. Equipment

a. The equipment of the engineer amphibious company consists mainly of communications equipment, engineer construction equipment, wheeled vehicles, LARC–V's, and CEV's (see *b* and *c* below) demolition equipment, and necessary housekeeping and maintenance equipment. Armament is limited to rocket launchers, machineguns, rifles, and pistols. For a detailed listing of this equipment, see TOE 5–408.

b. Organic to each engineer amphibious company are four lighters, amphibious, resupply cargo, 5-ton (LARC–V). The LARC–V is a wheeled amphibious vehicle capable of carrying five tons of cargo. The LARC–V is used by the shore party for a variety of lighterage tasks. For a discussion of the communications equipment organic to the LARC–V, see appendix N. For a description and illustration of this vehicle, see appendix G.

c. There are two combat engineer vehicles (CEV) organic to each engineer amphibious company. The CEV is a full-tracked vehicle which consists of a tank hull with a front-mounted, hydraulically-operated bulldozer surmounted by a turret bearing a 165-mm demolition projector, a retractable boom of welded tubular construction, and a winch. The CEV is used to provide direct and general engineer support of tactical units in the destruction of road-blocks, barriers, emplacements, strong points, and other obstacles impeding movement in or near the beach support area. It is also used to construct combat roads, trails, and avenues of approach in support of offensive operations. See FM 5–1 for more details on the CEV.

CHAPTER 5

SHORE PARTY TASK ORGANIZATION, PLANS, AND ORDERS

★(STANAG 2096, 2014; SOLOG 125)

Section I. SHORE PARTY TASK ORGANIZATION

5–1. General

The success of an amphibious operation is dependent in great part on the ability of the landing force to establish its assault elements ashore rapidly and effectively. To assist these elements in their movement across the beach and inland, a task organization called a shore party is organized. The need for shore parties results from two conditions—

a. Landing beaches are basically an obstacle to be crossed by assault elements of the landing force. Specialized support elements are required to clear obstacles and develop the beach area.

b. When executing an amphibious assault, the landing force elements are separated from the normal combat service support systems. Shore parties provide interim combat service support and initiate the stages or progressive development of the combat service support system in the objective area.

5–2. Shore Party Definition

A shore party is a task organization of the landing force formed for the purpose of facilitating the landing and movement off the beaches of troops, equipment, and supplies; for the evacuation from the beaches of patients and prisoners of war; and for facilitating the beaching, retraction, and salvaging of landing ships and craft. It comprises elements of both the naval and landing forces.

5–3. Shore Party Requirements

Shore parties are usually provided as follows (table 5–1):

a. Battalion Landing Team Shore Party (*BLTSP*). A BLTSP is required for each battalion landing team which lands over a landing beach in the initial assault.

b. Brigade Landing Team Shore Party (*Bde LTSP*). When a brigade landing team is employed as a subordinate echelon of the landing force with responsibility for establishment or operation of a beach support area, a brigade shore party is required.

c. Division Shore Party. One division shore party is required for each assault division.

d. Corps Shore Party. One corps shore party is required for each assault corps.

5–4. Functions of the Shore Party

In the accomplishment of its mission, the landing force element of the shore party performs tasks inland from the water's edge while those to seaward are performed by the naval element of the shore party. All shore party tasks are preformed under the command of the shore party commander (the commander of the engineer amphibious organization assigned to the landing force) designated by the landing force commander. The functions performed by the shore party are thus divided into two categories; those performed by the landing force elements and those performed by the naval elements.

5–5. Functions of the Landing Force Element

The landing force element of the shore party performs a variety of functions on the beach and in the beach support area. Typical of these are—

a. Marking limits of the beach and unloading points.

Table 5–1. Type landing forces and shore parties

Landing force	Formation	Type of beach	Supporting engineer amphibious organization	
			Composition	Mission
Bn Ldg Tm (BLT)	2 assault companies abreast, reserve company and headquarters and headquarters company following.	One Numbered Beach	1 Engr Amph Bn (–) 1 Hq & Hq Co (–) 1 Engr Amph Co (–) 1 Engr Amph Aslt Co Attached Units	Provides: BLT shore party, ship-to-shore and inland mobility for assault element of one battalion.
Bde Ldg Tm (BdeLT) (3 Battalions)	2 battalions abreast, reserve battalion following.	One Colored Beach (Two numbered beaches)	1 Engr Amph Bn 1 Hq & Hq Co 1 Engr Amph Co 2 Engr Amph Aslt Co Attached Units	Provides: BdeLT shore party, ship-to-shore and inland mobility for assault element of one brigade.
Div Ldg Force (3 Brigades)	(*a*)2 brigades abreast, reserve brigade following.	Two Colored Beaches (Four numbered beaches)	1 Engr Amph Gp 2 Engr Amph Bn Attached Units	Provides: Div shore party and ship-to-ship and inland mobility for the assault element of two brigades.
	(*b*)3 brigades abreast.	Three Colored Beaches (Six numbered beaches)	1 Engr Amph Gp 3 Engr Amph Bn Attached Units	Provides: Div shore party and ship-to-shore and inland mobility for the assault element of three brigades.
Corps Ldg Force (3 Divisions)	(*a*)2 divisions abreast, reserve division following.	Four Colored Beaches (Eight numbered beaches)	1 Engr Amph Bde 2 Engr Amph Gp 4 Engr Amph Bn Attached Units	Provides: Corps shore party and ship-to-shore and inland mobility for the assault element of two divisions.
	(*b*)3 divisions abreast.	Six Colored Beaches (Twelve numbered beaches)	1 Engr Amph Bde 3 Engr Amph Gp 6 Engr Amph Bn Attached Units	Provides: Corps shore party and ship-to-shore and inland mobility for the assault element of three divisions.

b. Designating and marking where landing ships and craft will beach and where causeways will be placed.

c. Designating and marking appropriate landing sites for helicopters.

d. Locating and establishing beach dumps and supply points, including amphibious assault fuel facilities.

e. Assisting troop units in landing and moving across beaches.

f. Marking or removing mines and obstacles in the beach support area (BSA) which are hazardous to landing ships, craft, vehicles, and helicopters.

g. Constructing and maintaining beach lateral and exit roads.

h. Establishing and operating information centers, and maintaining current situation maps to assist units which have landed.

i. Controlling traffic in the BSA.

j. Maintaining communications with troop commanders of both the waterborne and helicopterborne assault units and tactical logistical groups for control purposes.

k. Establishing lateral communications between beaches and landing zones.

l. Marking contaminated portions of the BSA, and decontaminating those areas that are essential for use.

m. Evacuating patients and prisoners of war. In counterinsurgency operations, the evacuation of refugees as required.

n. Providing emergency vehicle repairs and dewaterproofing facilities for vehicles landed in the waterborne assault.

o. Maintaining a continuous record, by category, of units, equipment, and amounts of both military and civilian supplies landed.

p. Controlling the movement of amphibian vehicles carrying supplies; unloading supplies from beached landing craft, ships, and helicopters; and moving these supplies to inland dumps or using units as required.

q. Providing security for dumps and supply points.

r. Providing local security and coordinating the defense of the BSA.

s. Initiating, as directed, civil affairs procedures in the BSA.

t. Initiating, as directed, military civic actions, psychological operations, and specified intelligence functions when the landing is in support of counterinsurgency operations.

u. Establishing and maintaining, as a part of the overall landing force warning system, a system to warn of air, ground, and CBR attack within the BSA.

v. Providing graves registration services, as directed.

w. Constructing helicopter landing sites within the BSA.

x. Loading helicopters with supplies for further delivery inland.

y. Providing and operating ship-to-shore bulk POL transfer system for the landing force.

5–6. Functions of the Naval Element

The naval element of the shore party performs the following functions:

a. Providing navigational aids and marking hazards to navigation in the vicinity of beaches.

b. Determining and advising shore party commanders of landing points suitable for landing amphibious vehicles, landing craft, landing ships, and beaching of pontoon causeways from the viewpoint of hydrographic and beaching conditions.

c. Directing beaching and retraction of landing ships and craft.

d. Salvaging landing craft and amphibious vehicles as required.

e. Effecting emergency repairs of landing craft.

f. Removing underwater obstacles in the beach approaches.

g. Assisting in local security of the BSA.

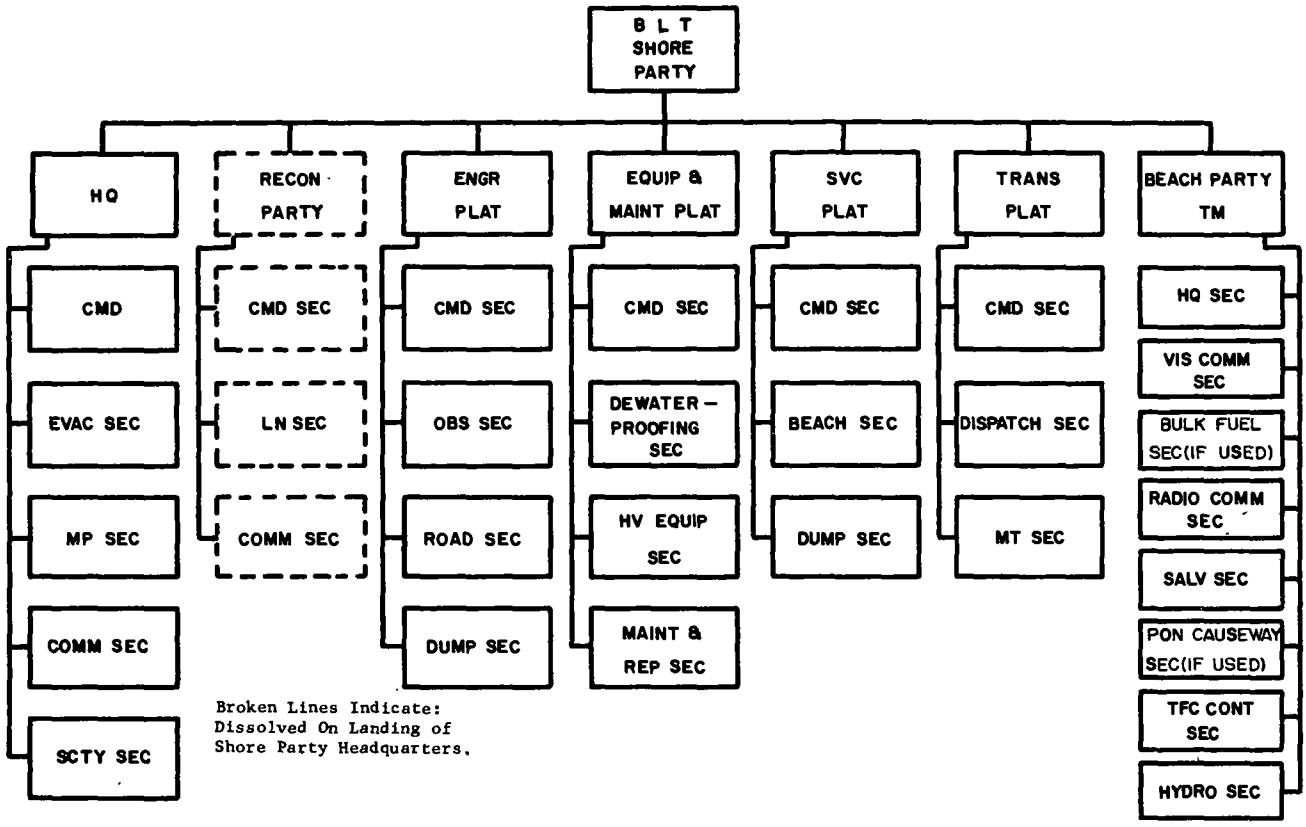
h. Maintaining communications with designated navy commanders and navy control units afloat, and between adjacent beach parties.

i. Assisting in evacuating patients, prisoners of war, and refugees.

j. Improving beach approaches from seaward and marking slots for landing ships and large craft.

k. Controlling waterborne traffic near beaches.

l. Providing and operating, as required, pontoon causeways, self-propelled pontoon barges,



★*Figure 5–1. Type battalion landing team shore party task organization.*

warping tugs, transfer barges, and controlling of off-shore cargo transfers operations.

m. Providing and operating ship-to-shore bulk POL systems for shore based naval elements.

n. Advising the shore party commander of navy activities in the vicinity of the beaches.

★5–7. Shore Party Support Organizations

a. During an amphibious operation, combat support and combat service support organizations are tailored to the amphibious force and are attached to the shore party to form the task organization and provide combat support and interim combat service support during the assault phase of the landing. For a field army amphibious operation, combat service support units of the field army support command (FASCOM) and nondivisional combat support units would be attached to the shore party to form the task organization. For an independent corps amphibious operation, a corps support command (COSCOM) and nondivisional combat support units would be attached. For an independent infantry division amphibious operation, a division support brigade and nondivisional combat support units would be attached. Type shore party task organizations for an independent corps and independent division operation are shown in paragraph 5–8. For a detailed discussion of the field army combat service support units, see FM 54–3 and FM 54–4. Details of the nondivisional combat support units are contained in applicable branch manuals.

b. When a base development is planned, representatives of the army component command headquarters, the construction organization, and the support command involved are landed early to establish liaison with the shore party headquarters. These theater army organiza-

tions replace the shore party when it is dissolved, and begin base development.

★5–8. Shore Party Task Organization

The shore party, as a task organization, is tailored for a particular operation. Many factors contribute to the composition of the shore party and they vary with each amphibious operation. However, as shore parties provide necessary combat support and interim combat service support during the assault phase of an amphibious operation, it is necessary to provide a balanced force of combat support and combat service support units for shore party operation. Table 5–2 contains a list of such units and the shore parties at the various echelons are discussed briefly in *a* through *c* below.

a. Corps Shore Party. Column 5 of table 5–2 indicates the types and numbers of units which are attached to an independent corps and are normally considered for employment as part of the shore party task organization. The nucleus of this shore party is the engineer amphibious brigade whose commander is designated as the corps landing force shore party commander.

b. Division Shore Party. Column 4 of table 5–2 indicates the types and numbers of units which are attached to an independent division and are normally considered for employment as a part of the shore party task organization. The nucleus of this shore party is the engineer amphibious group whose commander is designated as the division landing force shore party commander.

c. Brigade Landing Team Shore Party. The nucleus for the brigade landing team shore party is the engineer amphibious battalion which operates a colored beach (two numbered beaches) in support of an assault brigade landing. Normally, the brigade landing team shore party consists initially of two separate battalion landing team shore parties (BLTSP) supporting the two assault battalions of the assault brigade. The necessary combat support and combat service support elements are attached to the BLTSP's to support the assault battalion landing teams. See column 3 of table 5–2 for units normally considered for employment as part of the shore party task organization.

Table 5–2. A Type Shore Party Troop List

	1	2	3	4	5
1	Unit	TOE	Per BDELT	Per indep div	Per indep corps
2	*Eng amph units*				
3	HHC, engr amph bde	5–401	----------	----------	1
4	HHC, engr amph gp	5–402	----------	1	2
5	Engr amph bn	5–405	1	2	4
6	*Cbt spt units*				
7	HHC, engr cbt bde (corps)	5–101	----------	----------	1
8	HHC, engr cbt gp	5–52	----------	1	2
9	Engr cbt bn	5–35	1	2	4
10	Engr pipeline const spt co	5–177	----------	1	2
11	Engr pipeline const spt plat	5–177	1	----------	----------
12	HHD, sig gp	11–122	----------	----------	1
13	Sig bn (corps)	11–15	----------	----------	1
14	Comd ops co	11–17	----------	1	----------
15	Comm and op co plat	11–17	1	----------	----------
16	Fld op co	11–18	----------	1	----------
17	Fld op co plat	11–18	1	----------	----------
18	HHD, cml gp	3–32	----------	----------	1
19	HHD, cml smoke genr bn	3–266	----------	1	2
20	Cml smoke genr co	3–267	1	4	8

Table 5–2. A Type Shore Party Troop List—Continued

1	1 Unit	2 TOE	3 Per BDELT	4 Per indep div	5 Per indep corps
21	*Cbt svc spt units (COSCOM)*				
22	HHC, spt bde, corps	54–22		1	1
23	HHC, spt gp	29–102	1(–)	1	2
24	HHC, fld dep	29–512		1(–)	1
25	HHD, TMT gp	55–12			1
26	HHD, TMT bn	55–16		1	2
27	Lt/mdm trk co	55–67	1	1	3
28	Avn mdm hel co	1–258		1	2
29	Avn mdm hel plat	1–258	1		
30	Car co	55–19			1
31	Car plat	55–19		1	
32	Hv trk co	55–28			1
33	Hv trk plat	55–28	1	1	
34	Lt trk co	55–17			1
35	Lt trk plat	55–17		1	
36	Tml trf co	55–118			1
37	Tml trf co plat	55–118		1	
38	HHD, trans tml bn	55–116		1	2
39	Trans lt amph co	55–138		1	2
40	Trans lt amph plat	55–138	1		
41	Trans watercraft (LARC LX) tm FN	55–530	2	4	8
42	Trans TS co	55–117		1	4
43	HHD, med gp	8–122		1	1
44	HHD, med bn	8–126	1		2
45	MASH	8–571		1	2
46	Evac hosp	8–581		1	4
47	Med coll co	8–129	1(–)	1	1
48	Med clr co	8–128		1	2
49	Med clr plat	8–128	1		
50	Hel amb det (RA)	8–500		1	2
51	Med sup det (FB)	8–500		1	
52	Med sup det (FC)	8–500			1
53	Prof svc tms	8–500		as rqrd	as rqrd
54	Med amb co	8–127		1	2
55	HHC, ord ammo DS/GS gp	9–22			1
56	HHC, ammo DS/GS bn	9–36		1	2
57	Ammo co (conv)	9–38		1	5
58	Mag plat ammo co (conv)	9–38	1		
59	Spec ammo co (DS)	9–47		1(–)	3
60	GM maint co (GS)	9–59			1
61	GM maint plat (GS)	9–59		1	
62	EOD disposal det (KA)	9–520	1	1	5
63	EOD control det (KB)	9–520			1
64	HHC, MP gp	19–272			1
65	HHD, MP bn	19–76		1	1
66	MP co	19–77	1(–)	2	4
67	MP phys scty co	19–97			1
68	MP det, CID	19–500			1
69	MP ESGRD co	19–47		1	1
70	HHC co, petrl op bn	10–206			1
71	Petrl op co	10–207			1
72	Trans trk co (pet)	55–18		1	2

Table 5–2. A Type Shore Party Troop List—Continued

1	1 Unit	2 TOE	3 Per BDELT	4 Per indep div	5 Per indep corps
73	HHD, CA bn	41–500	----------	----------	1
74	HHD, CA co	41–500	----------	1	----------
75	HHD, CA plt	41–500	1	----------	----------
76	Sig Co, op, small HQ	11–147	----------	1	----------
77	Pers svc co (type A)	12–67	----------	----------	1
78	Pers svc co (type B)	12–67	----------	1	----------
79	Pers svc co (type C)	12–67	1	----------	----------
80	Fin svc org tms	14–500	----------	1	1
81	APO (type E)	12–605	1	2	4
82	Maint spt co	29–208	1	1	3
83	HHD, maint bn GS/DS	29–136	1	1	3
84	Hv equip maint co, GS	29–137	1	1	3
85	Coll and class co	29–139	----------	----------	1
86	LE maint co, GS	29–134	----------	----------	2
87	Trans acft maint co, DS	55–457	----------	1	2
88	HHC, S&S GS bn (fwd)	29–116	1	1	2
89	DS S&S co	29–147	1	1	3
90	Gen sup GS co (fwd)	29–118	----------	1	3
91	Gen sup GS plat (fwd)	29–118	1	----------	----------
92	Rep parts GS co (fwd)	29–119	----------	1	2
93	Rep parts GS plat (fwd)	29–119	1	----------	----------
94	Petrl sup co	10–227	----------	1	----------
95	Fld svc co, GS (fwd)	29–114	----------	1	2
96	Nav elm				
97	Nav beach group		1(–)	1	2

(*Note.* Provision for administrative and logistical support is made by parent units for their subordinste elements attached to the various shore parties and incapable of supporting themselves. See para 5–17.)

d. Battalion Landing Team Shore Party (BLTSP). The BLTSP conducts shore party operations

across a numbered beach in support of a BLT. The nucleus of the BLTSP is the shore platoon of the engineer amphibious company, engineer amphibious battalion. The shore platoon is augmented as required to accomplish its mission. The task organization for the BLTSP may be formed as follows (see fig. 5–1):

(1) *BLTSP headquarters.* The BLTSP headquarters includes the command section, evacuation section, military police section, communications section, and a security section. Command section personnel are provided by the headquarters, shore platoon, engineer amphibious company, engineer amphibious battalion. The evacuation section personnel are provided by attached medical personnel from the headquarters and headquarters company, engineer amphibious battalion and by augmentation personnel of the medical group of the support command. The military police section normally consists of a platoon from the military police battalion of the support command. The communications section personnel are obtained from the signal platoon, engineer amphibious company. The security section is composed of platoon personnel assigned for this duty. In addition to the above, the BLTSP is task organized to include—

(*a*) *Reconnaissance party.* The reconnaissance party is composed of a command, a liaison, and a communication section.

(*b*) *Provisional engineer platoon.* The provisional engineer platoon consists of a detachment from the shore platoon, engineer amphibious company, augmented as required, by a detachment from the mine clearance equipment platoon, headquarters and headquarters company engineer amphibious battalion. Augmentation is also provided by a platoon, engineer company, engineer combat battalion (army). The duties of the provisional engineer platoon are to clear the beach and the beach support area of obstacles, to provide a road net and to aid the assault units in crossing the beach.

(*c*) *Provisional equipment and maintenance platoon.* The provisional equipment and maintenance platoon is formed from a detachment of the equipment and maintenance platoon, engineer amphibious company, and personnel of the maintenance and equipment units provided from the field army support command. A detachment from the engineer light equipment company is also attached. The duties of the provisional equipment and maintenance platoon are to provide heavy engineer equipment, perform maintenance and repair, and assist units in dewaterproofing vehicles.

(*d*) *Provisional service platoon.* The provisional service platoon consists of a command section, a beach section, and a dump section. It is organized by using personnel from the transportation terminal service company and the supply and service units of FASCOM. It is responsible for unloading landing craft and the operation of the dumps in the beach support area.

(*e*) *Provisional transportation platoon.* The provisional transportation platoon is composed of personnel and equipment of the transportation unit provided by the field army support command. It is responsible for transporting supplies, personnel, and equipment on the beach and in the beach support area.

(*f*) *Beach party team.* The beach party team is the naval component of the BLT shore party. The beach party team commander (beachmaster), a naval line officer, lands with the BLT shore party commander and is under the operational control of the BLT shore party commander. The beach party team may be composed of ten sections as follows:

1. Headquarters section. The headquarters section contains the beach party team commander, communicators, and administrative assistants. A part of this section lands with the shore party team reconnaissance party.

2. *Visual communications section.* The visual communications section contains enlisted signalmen equipped with signal lights and flags. They maintain visual communications with forces afloat as well as with adjacent beaches.

3. *Broadcast section.* The broadcast section is equipped with a public address and broadcasting set. This section uses voice communications for directing personnel and craft in vicinity of the beach area.

4. *Radio communications section.* The radio communications section utilizes both portable and mobile radio equipment. This section provides communications with forces afloat and with adjacent beaches.

5. *Salvage section.* The salvage section contains personnel and equipment from the amphibious construction battalion (ACB) of the naval beach group. They utilize equipment such as tractor dozers, amphibious vehicles, and surf cranes. Landing craft may be assigned to assist in boat salvage. This section is capable of assisting landing craft and ships to beach and retract, accomplishing minor beach improvement, and effecting salvage of landing craft and amphibious vehicles.

6. *Boat repair section.* The boat repair section contains specialist personnel from the assault craft unit of the naval beach group. They are equipped with damage control, electrical, and engine repair kits. This section performs emergency repairs to landing craft on the beach. Landing craft requiring extensive repairs are towed to their parent ships or to designated repair ships.

7. *Traffic control section (seaward).* The traffic control section (seaward) consists of personnel equipped with signal flags and other signal devices. Its personnel are stationed at unloading slots along the beach for the purpose of directing beaching and retraction of craft.

8. *Hydrographic section.* Hydrographic section personnel are provided from the underwater demolition teams (UDT). UDT's perform pre-H-hour tasks with the advance force. UDT personnel are normally attached to the beach party and report to the beach party team commander shortly after H-hour, following completion of their tasks with the advance force. The hydrographic section conducts tasks such as marking and removing obstacles in the beach approaches up to high water mark, hydrographic surveys, marking channels and navigational hazards, and improving seaward approaches. The section is equipped with inflatable boats, survey equipment, buoys, and demolitions.

9. *Pontoon causeway section.* When required, a pontoon causeway section is attached to the beach party team. The pontoon causeway section consists of personnel trained, equipped, and organized to provide barges and causeways required to land equipment and supplies of the landing force over the beach. The pontoon causeway section is initially embarked, moved to the objective area, and launched under control of the transport group commander or other naval forces afloat during the ship-to-shore movement. Once causeways are secured to the beach, they are under the operational control of the beach party commander, becoming part of the shore party.

10. *Bulk fuel element.* When required, a ship-to-shore bulk fuel element is attached to the beach party team. Operational control of this element during embarkation, movement to the objective area, and during installation is exercised by the transport group commander or other naval forces afloat. Upon installation, operating personnel for the system are under the oper-

ational control of the beach party commander, becoming part of the shore party.

(2) *Special attachments.* There are any number of special attachments that may be made to the shore party to assist in shore party operations. Included are tactical units which may be attached to the shore party to provide for the defense of the area against ground or air attack.

Section II. SHORE PARTY PLANS AND ORDERS

5–9. General

Beginning with the initiating directive, there are a variety of documents required for an amphibious operation. One of these, the shore party plan, is of primary interest to all engineer amphibious units and the units which will be attached for shore party operation. In a corps operation the shore party plan can be very brief, outlining in general the shore party tasks required to be performed by each division shore party. The division shore party plan is more specific in outlining the shore party tasks required to be performed by each brigade shore party. Each brigade landing team, in turn, may issue supplementing instructions for the battalion landing team shore parties operating the numbered beaches.

5–10. Shore Party Activation Order

Normally, shore parties are activated at corps or division levels. By division plans and orders, the division shore party is broken down into a division component and shore party task organizations for attachment to brigade landing teams. Usually, brigade plans and orders will further organize the brigade landing team shore party into a brigade component and shore party task organizations for attachment to battalion landing teams. An example of a shore party activation order is shown in appendix O.

5–11. The Shore Party Plan

A shore party plan is published as an annex to the operations order of the supported unit. It includes the mission, concept of operation, and details necessary for clarification of subordinate echelon shore party missions. The plan contains provisions for the attachments of army and naval elements to form the task organization, the time of attachments, and allocations of equipment. It also includes missions assigned each subordinate echelon shore party, control guidances therefor, and priorities for landing shore party elements and equipment. Appendix P shows a type divisional shore party plan. Normally, a shore party plan includes the following appendixes:

a. Task organization.

b. Beach and hydrographic study (if not an appendix to the intelligence annex, operations order).

c. Beach development plan.

d. Shore party defense plan.

e. Medical plan.

f. Signal plan.

g. Supply point operation plan.

h. Area damage control plan.

i. Shore party alternate plan.

j. Reports.

5–12. Planning Responsibility

The army landing force commander is responsible for preparation of shore party plans and orders. The tactical unit's operations officer has primary responsibility for coordinating shore party plans and, because of the combat service support factor, the logistics officer also is concerned with shore party planning. Since amphibious engineer units furnish command and control as well as operational elements, they must be made available as soon as possible after receipt of the operational directive so that they can provide technical assistance in the complex planning and preoperational training phase.

5–13. Naval Support Plan

The amphibious task force commander (Navy) plans the naval means that insure effective support for the shore party plan. Naval support plans provide for unloading, prisoner of war and patient

evacuation, and assignment of naval units required by the shore party. These naval units must be assigned early enough, preferably 45 days prior to embarkation, to allow for integrated preoperational training. Naval support plans also provide for pontoon causeways, bulk fuel, hydrographic information, and any construction to be undertaken by the naval amphibious construction battalion.

5–14. Planning Procedure

The engineer amphibious unit commander, as shore party commanding officer, begins shore party planning immediately upon receipt of the directive for the operation. Since the shore party is a task organization supporting a complex operation, its command relationships must be established early and must be thoroughly understood at all levels. The shore party participates in detailed planning with the supported combat unit, other shore parties, and the army and navy units integrated into it. Because time usually does not permit progressive planning at successive subordinate levels, all shore party planning proceeds concurrently at each echelon of command. Within assault divisions, planning for shore party operations usually is centralized at division level with concurrent planning by the subordinate echelons that employ shore parties. Liaison between corps and division, and between division and subordinate shore party commanders, facilitates early accomplishment of coordinated shore party plans. These plans must be completed and approved in time to allow for delivery of equipment and supplies, and to permit the integrated training of the shore party task organization prior to rehearsal and embarkation.

5–15. Plan Development

In developing the shore party plan the shore party commander considers the following factors:

a. The landing force scheme of maneuver and the related landing plan.

b. Enemy installations and expected enemy activities in the landing area.

c. Topographic and hydrographic conditions in the landing and adjacent areas.

d. Beach development requirements and subsequent base development plans.

e. Support installation requirements.

f. Amounts and types of supplies and equipment to be landed, including POL requirements.

g. Types of ships to be unloaded.

h. Availability of shore party personnel and equipment.

i. Collection, treatment, and evacuation of patients.

j. Disposition of prisoners of war.

k. Coordination required from other agencies.

5–16. Intelligence

Certain essential elements of intelligence are required in greater detail for amphibious operations. These include—

a. Features in the Landing Area. Careful study of aerial photography can disclose areas useful for beach installations as well as obstacles in the landing area. Obstacles may require use of demolitions personnel in the preassault or early operational phases. If not damaged seriously during the assault, existing piers and causeways in the objective area will simplify unloading.

b. Hydrography. Seaward approaches should be studied for such unfavorable conditions as—

(1) Reefs that may cause damage to landing craft or require use of transfer barges.

(2) Sandbars or shallow beach gradients that prohibit beaching of LST's and may require use of causeways.

(3) Extreme tidal ranges that limit beaching of craft to only a few hours daily.

(4) Wave action and heavy surf or winds that require use of antibroaching lines and standby salvage boats.

c. Terrain. The engineer amphibious unit commander, working with the landing force G2, prepares detailed terrain analysis to determine—

(1) Number of available beach exits.

(2) Ease of constructing additional beach exits.

(3) The road net in the beach area.

(4) Availability of suitable supply point sites.

(5) Available cover and concealment in the beach support area.

(6) Beach composition and trafficability.

(7) Natural and artificial obstacles, difficulty of removal, and their probable influence on operations.

d. References. FM 110–101 and FM 110–115 contain detailed information on amphibious intelligence and reconnaissance requirements.

5–17. Attachments

a. The organization of all required shore parties is resolved as early as possible in the planning phase. Often BLT shore parties will consist of small elements from a variety of TOE units with none large enough to possess a morning report or unit supply and maintenance capability. Such a situation is unfavorable to attachments of shore parties to battalion landing teams other than for training only, until just before embarkation.

b. Attachment prior to embarkation of shore parties or shore party component elements in any way that imposes abnormal administrative responsibilities on tactical elements below division level must be avoided when possible. For this reason, vertical channels between lower echelon shore party components and their parent elements in higher shore party echelons normally are retained for many pre-embarkation administrative and supply actions. Shore parties, however, are trained as integrated organizations for employment at each echelon.

CHAPTER 6

SHORE PARTY OPERATIONS

Section I. COORDINATION, CONTROL, AND COMMUNICATIONS

6–1. General

The shore party task organization, becausc of its complex nature and mission, requires maximum coordination and control from initiation of planning through its establishment and operations ashore. Planning for shore party functions commences with the receipt of the directive to prepare for the operation. The composition of the shore party is based on the tactical plan and the scheme of maneuver ashore. The shore party commander forms the task organization into provisional sections and platoons, each with definite tasks and responsibilities. He effects coordination and control through his subordinates, organic and attached communication units, and the tactical-logistical group.

6–2. Tactical-Logistical Group

a. Description. A tactical-logistical group (TAC–LOG) functions as the landing force commander's staff liaison representative for the principal purpose of advising corresponding navy control officers of landing force requirements while the ship-to-shorc movement is being executed. TAC–LOG groups are established aboard designated vessels as required by the commanders of divisions and brigades and in some instances (a landing on a separated beach), battalions. Relationship of the navy control organization, landing force organization, and the TAC–LOG group organization is shown in figure 6–1.

b. Organization. The composition of the TAC–LOG group varies with the need of each operation. Officers assigned to the group must have a thorough knowledge of the tactical plan, the cargo carried by the ships, the loading plan, and the landing plan of their parent unit. Normally, the TAC–LOG group is composed of representatives from the unit G3/S3 and G4/S4 sections, including those of the engineer amphibious units, and the embarkation officer and various assistants. Representatives of other general and special staff sections, and of artillery, air, medical, and amphibious vehicle units may be included.

c. Operation of TAC–LOG. The sequence in which troop units and their supplies and equipment are landed is set forth in the plan for landing and the plan for landing supplies. When tactical requirements ashore make it necessary to vary the prescribed sequence of landing of personnel and their supplies and equipment, these changes are passed to the shore party by the tactical unit, and then to the navy control organization via the TAC–LOG group. Existing shore party control and command radio nets are used. When the urgency of the situation or failure of communication facilities requires that troop requirements be transmitted directly to the TAC–LOG group through tactical nets, the shore party is also notified as quickly as possible. This is imperative to assure that necessary arrangements are made by the shore party to receive troops, supplies, and equipment on the beach. It is the responsibility of the shore party commander to know at all times what elements are ashore from the tactical unit he is supporting, as well as the status of any requests that have been made by the tactical unit for additional troops, supplies, and equipment to be landed. Initial unloading is selective to establish preplanned levels of various classes of supply ashore. When general unloading begins, tactical functions of the TAC–LOG group end. Tactical members of the group land and resume normal duties with their units. Certain combat service support members, however,

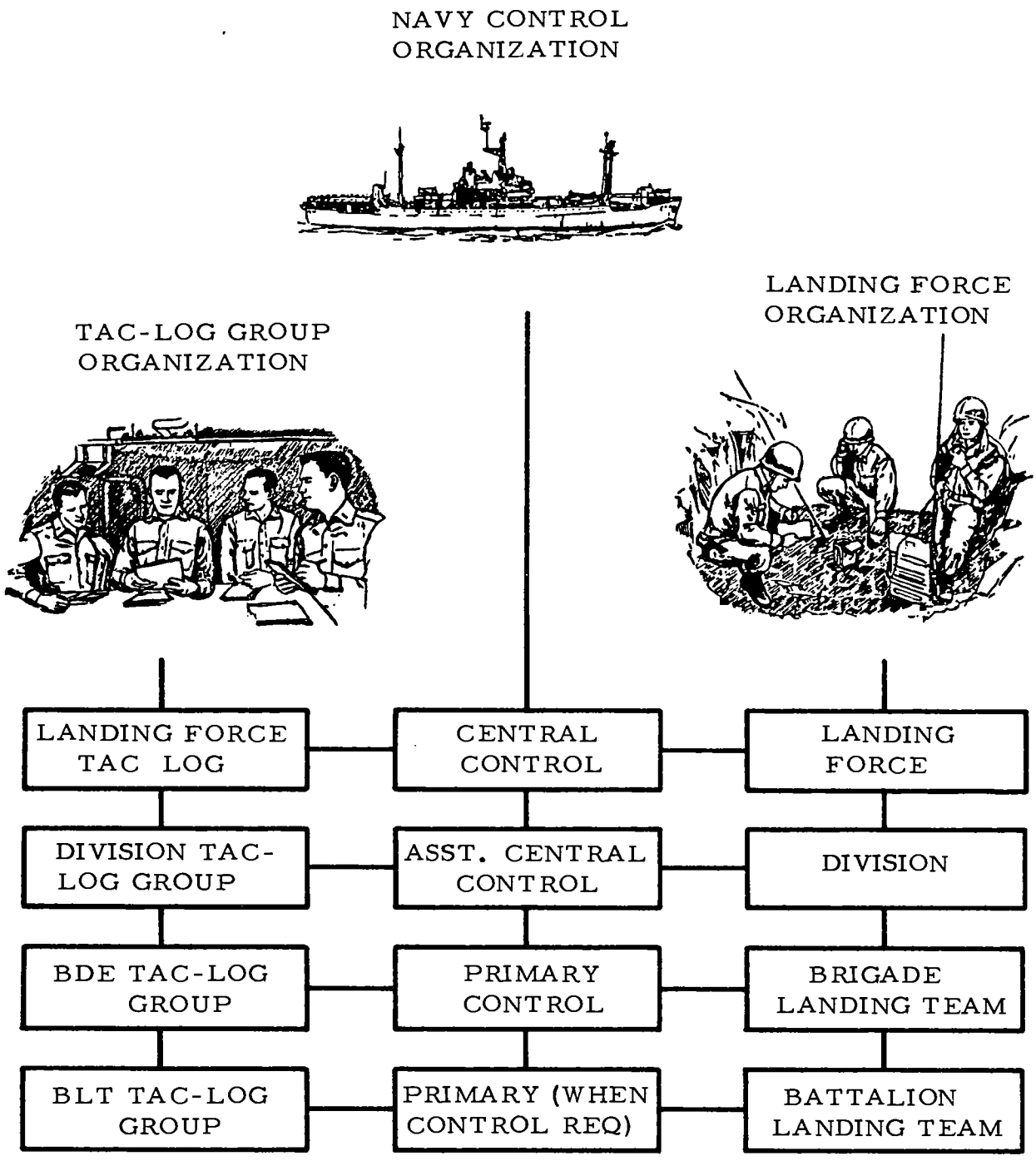


Figure 6–1. The relationship of TAC–LOG group with the navy and landing force organizations.

normally remain aboard ship to assist the navy until the assault shipping is unloaded.

d. Communications. TAC–LOG groups communicate over landing force radio nets. Communications equipment for the brigade landing team and battalion landing team TAC–LOG groups are furnished by the parent tactical unit. Communications for the division TAC–LOG group are provided by the division signal unit. TAC–LOG's maintain communications with tactical commanders, logistic agencies, and in particular, with the shore party echelons ashore. As soon as reconnaissance elements of the BLT shore parties land and establish communications, they relay requests for troop serials and supplies from the tactical commanders ashore to TAC–LOG groups on the control ships. Except in emergencies, all requests are made via the shore party. To assure expeditious handling in the beach support area, TAC–LOG groups keep shore party commanders advised as to status of supplies or serials requested, as well as time they cross the line of departure.

e. TAC–LOG Tasks. A TAC–LOG group performs the following tasks during the ship-to-shore movement:

(1) Keeps appropriate commanders of the landing force informed as to the progress of the ship-to-shore movement.

(2) In coordination with the navy control agency, expedites the landing of troops, equipment, and supplies in accordance with plans and orders, or as requested by the appropriate troop commander.

(3) Advises the navy control officer as to the location of troop units, equipment, and supplies.

(4) If adjustments are ordered in the sequence of landing, assists the navy control officer in making such adjustments.

(5) Maintains a detailed account of the status of unloading and landing, including a record of dispatch time and arrival time of each serial at the beach.

6–3. Communications in Amphibious Operations

a. The joint nature of amphibious operations requires detailed coordination and planning for communications. The communications systems of each service involved must be integrated into a single effective system through the use of compatible equipment and the employment of common procedures contained in appropriate joint Army-Navy-Air Force publications. The communications systems of participating service components remain intact but are interconnected by means of lateral circuits and coordinated by using common procedures. The commander of the joint amphibious task force is responsible for coordination and providing supplemental communications means until such time as the landing force commander assumes responsibility for his own communications system. Plans must be made by the landing force commander to establish reliable communications ashore as rapidly as possible in order to relieve the congestion on initial assault radio facilities. Therefore, wire equipment and installation teams are off-loaded early and wire circuits are installed ashore as early as possible. These initial links are constantly improved, expanded, and consolidated.

b. In the initial phases of an amphibious operation, great reliance must be placed on radio, since much of the communication is over open expanses of water. Visual signals also are used extensively where not restricted by line-of-sight. Because of heavy demands on radio, net discipline must be maintained to insure passage of essential traffic. These means are supplemented by wire communication installed during establishment and consolidation of the beachhead. Messengers (land, sea, and air) are employed for transmission of bulk messages ship-to-shore and between ships or shore points. Visual means in the nature of colored panels and signs are used for beach markings. Sound signals are used for alerting and emergency alarms, unless excessive battle noises or distance preclude their effectiveness. For a more detailed discussion of signal/communications planning for an amphibious operation see FM 31–11 and FM 31–12.

c. The shore party uses all primary means of communication (messenger, wire, radio, and radio relay) as well as supplementary means

(visual and sound). In addition to normal communications equipment available to the shore party organization such as radio, telephone, radio relay, teletype, and cryptographic devices, the shore party utilizes public address systems, electronic megaphones, and various signal lights. Supplementary communications are afforded the shore party by the naval component of the shore party. The nets of the naval component of the shore party generally parallel shore party troop radio nets seaward, for example, from the beach to TAC–LOG's aboard control ships and transports. In addition to the ship-to-shore communications mentioned above, the underwater wire communications system, a simple two-way field telephone communication from ship-to-shore, laid along the ocean floor to its buoy terminal is also used. Primary sources of shore party communications are the communications section of the engineer amphibious company and the headquarters and headquarters company of the engineer amphibious battalion.

6–4. BLT Shore Party Communications

The beach support area communications are progressively developed. Initially, radio is the primary means with wire being installed as soon as the situation permits. Radio communications are employed between the BLT shore party command post, BLT command post, BLT TAC–LOG, and adjacent shore parties. Wire is utilized between the BLT command post and the BLT shore party command post, paralleling radio communications. Wire is also used between the BLT shore party command post and the dumps or supply points (fig. 6–2). A liaison section (normally a shore party officer or NCO and signalmen) lands with the BLT headquarters. This liaison party remains with the BLT headquarters and establishes both radio and wire communications with the BLT shore party headquarters. The rest of the shore party lands and establishes communications with adjacent shore parties and supported units. Requests reach the shore party headquarters from the BLT over wire or radio. The BLT shore party requests the landing of supplies, including emergency requests from the BLT, over radio nets, underwater wire, or by visual signal, to brigade and BLT TAC–LOG afloat.

6–5. Brigade Shore Party Communications

When the brigade shore party is established ashore, the brigade shore party commander takes control of the BLT shore parties and responsibility for the two numbered beaches operated by the BLT shore parties. Communications are established from the BLT shore parties to the brigade shore party supporting the tactical brigade and from the brigade shore party to the tactical brigade. Requests for supplies and equipment then flow from the tactical battalions to the tactical brigade over the tactical brigade radio, wire, and integrated wire-radio systems. The tactical brigade then transmits all requests for supplies and equipment to the brigade shore party for action. In emergencies, the tactical brigade transmits its requests directly to the brigade TAC–LOG group and then notifies the brigade shore party of the requests (fig. 6–3).

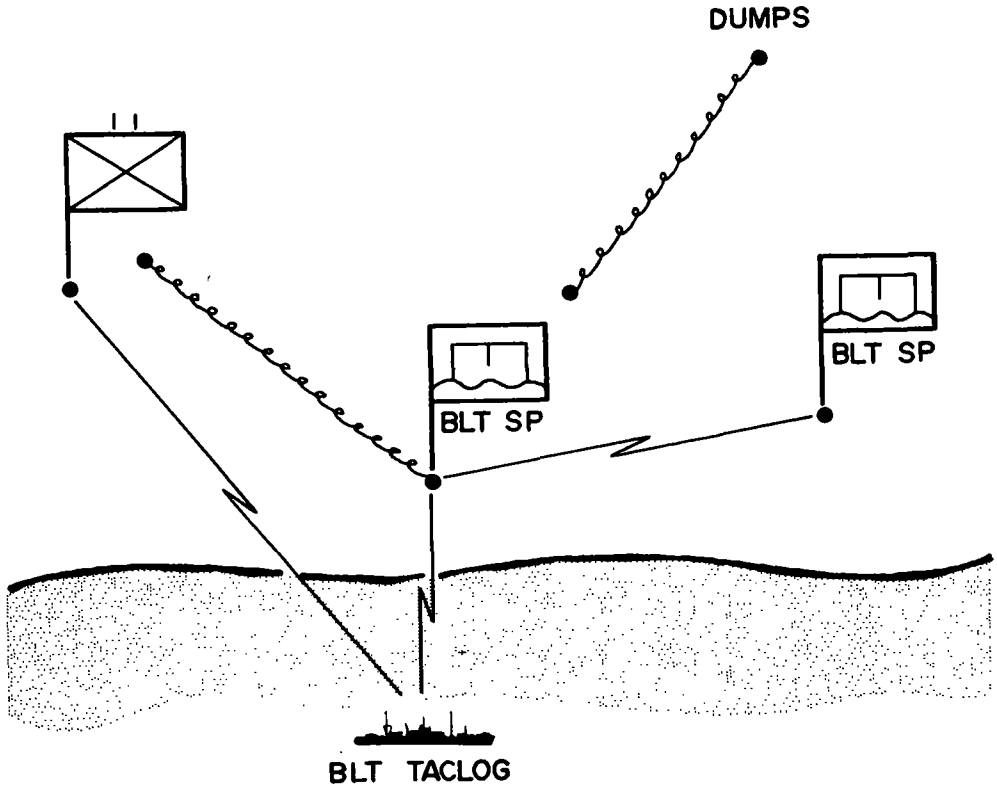
6–6. Division Shore Party Communications

The division shore party CP is established in one of the beach support areas. The division shore party coordinates operations in the BSA's. Typical division shore party communications are shown in figure 6–4. Various radio nets used by the division shore party for logistic communications are—

a. Division Shore Party Control Net. Provides a net for coordination and control of supplies landed over the beaches.

b. Division Shore Party Command Net. Parallels the division shore party control net providing means by which the division shore party commander exercises command over subordinate shore party elements.

c. Shore Party Local Net. Radio communications within shore party elements are carried over this net. It is of particular use during the ship-to-shore movement.



★*Figure 6–2. BLT shore party communications.*

Section II. INITIAL ACTIONS ASHORE

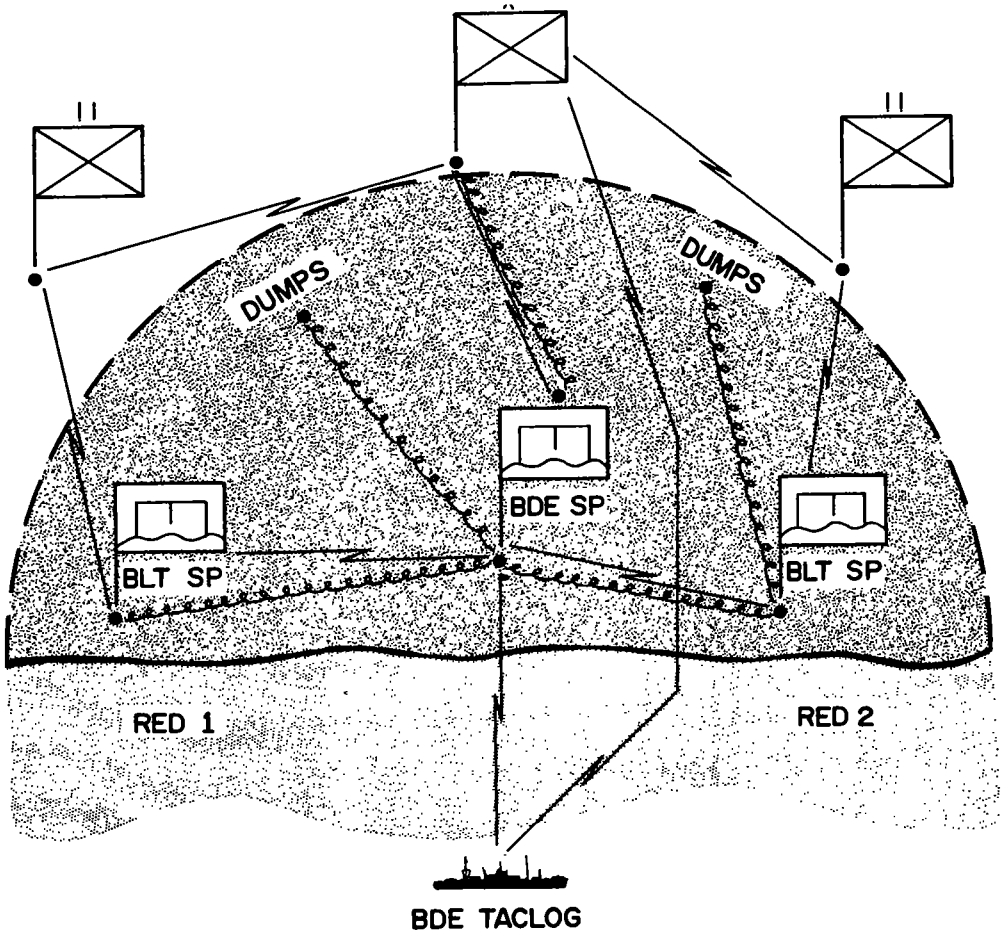
6–7. General

a. Although some units may be projected ashore by air means, the bulk of the force is projected ashore by surface means. These may include amphibious tractors, amphibious trucks, and landing ships and crafts. This requires the establishment of a combat service support area in proximity to the beach. Initially, assault elements of combat units are provided combat service support by the mode of transportation in which they go ashore. Certain of the amphibious tractors or landing craft are designated as floating dumps to carry supplies and carry additional ammunition, rations, and water for the assault element. Subsequently, combat service support is provided from sources ashore or afloat utilizing available surface or air means. The shore party is organized and trained to solve the problem of providing adequate interim combat service support to units of the landing force before sufficient time and space are available to permit establishment of normal combat service support systems ashore. The shore party insures that supplies are available to combat units at the time required, in sufficient quantity, and in a usable condition. The landing force tactical organization and the plan for landing provide the basis for establishing the concept for shore party operations.

b. The establishment and operation of shore parties ashore normally takes place in four phases as follows:

(1) The assault elements of the landing force land, accompanied by elements of their shore parties.

(2) The reinforced shore platoons of the



★*Figure 6–3. Brigade landing team shore party communications.*

engineer amphibious company, engineer amphibious battalion, land on BLT (numbered) beaches and establish an area of operations; movement of units, equipment, and supplies to the shore begins. When the commander of the engineer amphibious company lands, he begins consolidation of the two BLT (numbered) beaches into a brigade (colored) beach.

(3) The commander of the engineer amphibious battalion (brigade shore party commander) lands with the commander of the tactical brigade, assumes command of the brigade landing team shore party, and completes consolidation of the two BLT (numbered) beaches into a brigade (colored) beach.

(4) The commander of the engineer amphibious group (division shore party commander) lands with the division commander and begins consolidation of the brigade beaches into a division beach.

c. When a corps landing is undertaken, the commander of the engineer amphibious brigade (corps shore party commander) lands and consolidates the division beaches into a corps beach.

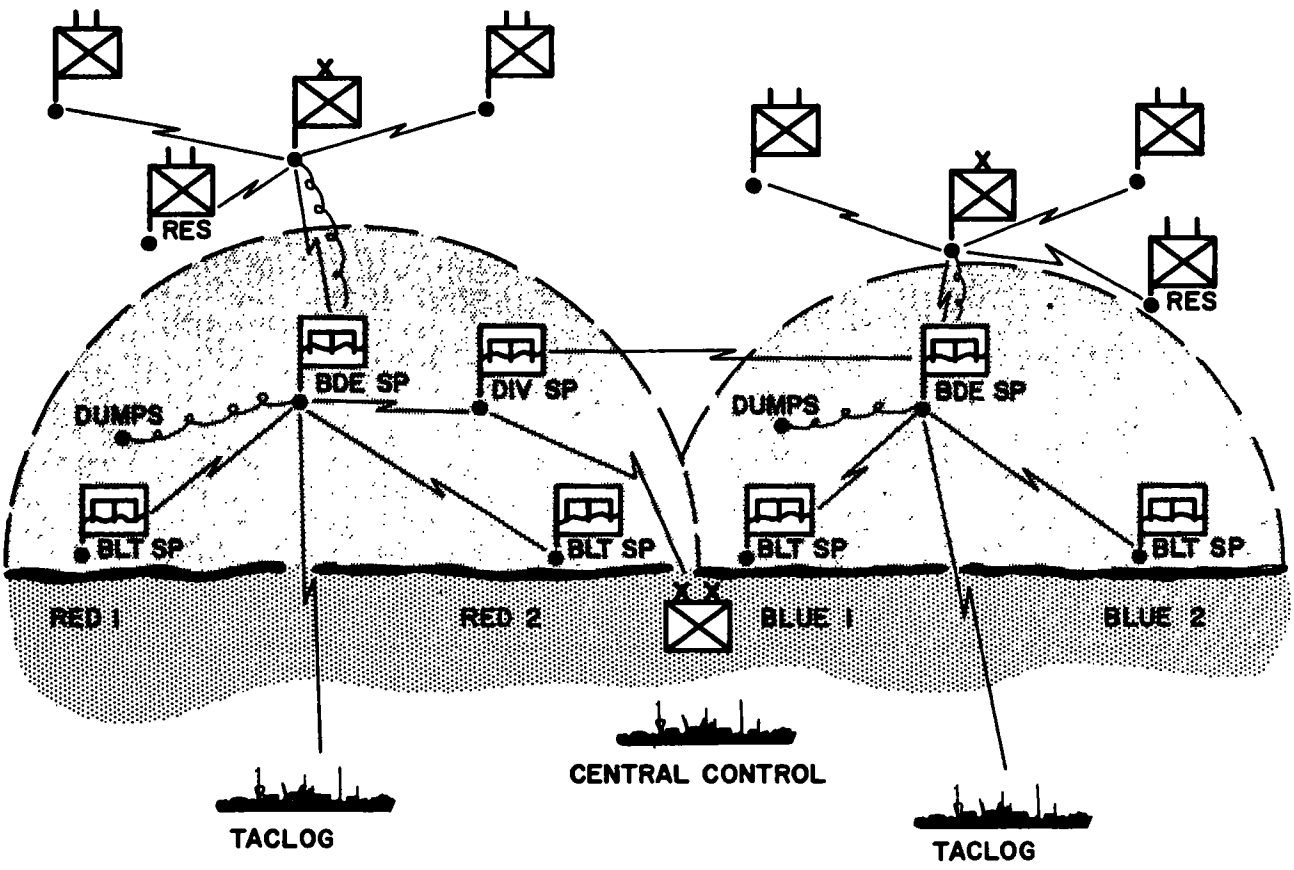


Figure 6–4. Division shore party communications.

6–8. Functions of the Engineer Amphibious Company

a. The reinforced shore platoon of the engineer amphibious company is normally responsible for a BLT (numbered) beach. It is the first shore party unit to commence beach organization. The first element of the shore platoon ashore is the reconnaissance party, consisting of a command section, a communications section, and a liaison section. This party lands with the third or fourth wave and performs the following general duties:

(1) The command section of the reconnaissance party reconnoiters the beach area to verify the location of planned installations, road and beach nets; selects an advance CP; relays initial requests for supplies from the liaison officer with the BLT commander to the brigade landing team TAC–LOG; and submits reports to the TAC–LOG group and to division headquarters regarding the suitability of the beach for unloading and movement inland of supplies and equipment.

(2) The communications section of the reconnaissance party maintains communication with the liaison officer at the BLT command post and with the TAC–LOG group aboard the primary control vessel.

(3) The liaison section of the reconnaissance party establishes wire and radio communication between the communications section of the reconnaissance party and the BLT command post; transmits the BLT commander's requests for supplies and equipment; and reports to the TAC–LOG group any developments in the tactical situation which may influence the time of landing of the remainder of the shore party. The liaison section consists of a liaison officer, a radio operator, and a wireman. Liaison personnel usually come from the headquarters company, engineer amphibious battalion, or from a unit attached to the battalion. They are selected when the shore party is first activated and train with the BLT to insure familiarity with BLT personnel and policies.

b. The command section of the engineer amphibious company maintains a continuing record of the units, supplies, and equipment landed on the beach; provides an information center to orient troop leaders arriving on the beach after the scheduled elements of the brigade landing team have landed; provides guides, if required, to conduct personnel to forward or adjacent areas; and establishes markers to indicate unloading points and beach dumps.

c. The shore platoons of the engineer amphibious companies, augmented by attached combat support and combat service support units and detachments, construct beach roadways and lay assault matting and trackway; clear and prepare dump areas; assist in the landing of vehicles; operate cranes and tractors for unloading landing craft; decontaminate gassed areas; assist in the camouflage of beach dumps and other beach installations; perform demolitions in the beach area; and when required, assist in the salvage of amphibious vehicles and landing craft. Aided by personnel from the combat service support units, the platoons also unload supplies from landing craft, landing ships, and amphibious vehicles, and assemble the various categories of supply in designated beach dumps. They also assist the mine clearance platoon of headquarters and headquarters company, engineer amphibious battalion, in removing or reducing minefields in the beach and the beach support area.

6–9. Reconnaissance

a. The reconnaissance party, as the first shore party element ashore, submits reports to the shore party headquarters afloat regarding the suitability of previously selected sites for unloading points, beach exits, roads, and beach dumps; soil trafficability of the beach and immediate exits; and other terrain features which have an influence on shore party operations. The reconnaissance element of the beach party team of the naval beach group reconnoiters the sea approaches to the beach and determines any hazards to navigation.

b. The shore platoon leader, who also lands in the third or fourth wave, checks the recommendations of the reconnaissance party, and locates the beach identification markers, landing points, beach exits, roads, and other initial installations. Any necessary changes or adjustments are made in the original beach organization plan to fit the actual terrain.

Naval demolition teams neutralize or remove underwater obstacles located by their reconnaissance personnel.

c. When the company commander of the engineer amphibious company lands, he confers with the shore platoon leaders ashore, making any changes required to meet the current situation. This procedure is repeated by each higher shore party commander arriving at the beach.

d. Engineer reconnaissance is continuous, and the principles prescribed for ground operations are followed by all shore parties. After the initial missions are accomplished, reconnaissance will be conducted to locate sources of water supply or to confirm the adequacy of predetermined sources, and to locate engineer materials for road construction and for beach installations.

6–10. Preparation of Beach

a. As specific locations for shore party installations are decided upon, shore party personnel erect markers indicating the center and flanks of the beach, and the unloading points. A command post is established, and communication is opened with the supported battalion or brigade landing teams and TAC–LOG group.

b. Attached naval elements of the shore party deploy their personnel and equipment so that the landing and retraction of landing craft can be controlled. Communications are established and arrangements are made for the emergency salvage and repair of landing craft and amphibious vehicles.

c. Unloading points and initial beach dumps are a first priority. Dumps must be ready to receive supplies in an orderly manner. If they are not prepared promptly, the beach will soon become cluttered with unsorted supplies and equipment. The commander of troops on each assault vessel is concerned primarily with his tactical mission ashore. His responsibility includes the preparation of the necessary tables, the assignment of embarked personnel, and the loading of his equipment on the craft or ship. Once landed, the tactical commander is responsible for the movement of his unit and its equipment over the beach and inland to the unit's objective. The shore party is responsible for all unloading tasks on the beach including assistance to the tactical commander in dewaterproofing and handling stalled tactical vehicles.

d. Nondivisional engineers attached to the shore party are used to perform combat engineering tasks. They may be employed to assist in breaching lanes through beach obstacles and minefields, clearing mines and other obstacles throughout the beach support area, clearing sites for beach dumps and other facilities, and constructing and maintaining roads and unloading slots.

6–11. Initial Supply Procedure

a. When the first assault units land, they carry with them only a limited quantity of rations, water, and ammunition for individual weapons. To provide an assault battalion or brigade landing team with an emergency reserve of critical items (ammunition, water, rations, flamethrower fuel), amphibious vehicles (or landing craft) may be assigned to each battalion or brigade landing team as a floating dump. They remain in position near the primary control vessel, and are landed on order of the battalion or brigade commander. Instructions concerning floating dumps are usually contained in the logistical annex to the division operations order or in the division administrative order.

b. If supplies are needed, the BLT commander notifies the liaison officer of the shore platoon, who forwards the request to the shore party command post on the beach, which in turn notifies the appropriate TAC–LOG group. The TAC–LOG group then determines where the supplies can be obtained, and passes the request to the primary control officer. If the supplies are in the floating dumps, the control officer orders the appropriate landing craft or amphibious vehicle to the beach for unloading. The shore party commander is informed of the action taken.

c. When the landing craft arrives at the beach, it is unloaded by the shore party and returns to the primary control vessel. Nonessential items are removed from amphibious vehicles and placed in beach dumps before the vehicles proceed inland and unload the requested supplies. After unloading, the vehicles return to the beach support areas and come under the control of the shore party headquarters for further employment.

d. If the requested supplies are not in floating dumps, the TAC–LOG group informs the primary control officer as to the ship in which they are loaded. The control officer forwards a request to

have the supplies placed in landing craft, or amphibious vehicles which then report to the primary control vessel for dispatch to the beach.

e. After the brigade landing team headquarters has landed, the BLT commander requests supplies from the brigade landing team, which directs the brigade landing team TAC–LOG group to have them sent ashore. When this is done, the brigade landing team notifies the shore party of the action taken.

f. As soon as the shore party is capable of unloading more supplies than are being requested by the units ashore, the shore party commander requests that additional supplies be landed. The remainder of the floating dump supplies are then unloaded and placed in beach dumps. Additional supplies embarked in ships are landed, and the beach dumps are gradually expanded so that all classes of supply are available in the beach support area. When distances are short from the beach to the combat troops, combat service support troops of the assault units may be available to help the shore party. Units then draw their supplies directly from the beach dumps.

g. When the company headquarters of the engineer amphibious company is established ashore, it assumes control of the BLT beaches and begins consolidation of the BLT shore parties into a brigade shore party. The company commander is followed ashore by the commander of the engineer amphibious battalion, who assumes command of the brigade shore party and completes consolidation of the two BLT (numbered) beaches into a brigade (colored) beach. At this time, the brigade shore party commander may recommend to the division shore party commander that general unloading begin.

h. The brigade landing team commander assumes responsibility for supply when he has sufficient combat service support troops and equipment ashore to commence executing the plan of supply. Initially, the distributing points are the beach dumps. As the attacking forces advance, the brigade landing team establishes distributing points inland and ceases to operate from the beach dumps as soon as the supplies in these dumps have been issued. If the division support command is ashore and the division commander assumes supply responsibility, the brigade landing team operates according to the supply instructions contained in the division order.

i. The shore party commander is responsible for building up supplies ashore initially in accordance with the supply levels prescribed by the division commander. This buildup cannot begin until the beach dumps are ready to receive supplies and equipment. When the supplies from floating dumps are unloaded, those not issued to assault units to fulfill their requests are placed in the appropriate beach dumps. The shore party commander then determines the types and quantities of supplies needed to reach the prescribed D-day levels, and notifies the TAC–LOG group of his requirements.

★6–12. Shore Party Identification

a. To facilitate recognition, all Army personnel of the shore party wear a red patch 1 inch wide and 2 inches long on the outside of each trouser leg at the knee. Navy members of the shore party wear a corresponding blue patch.

b. All trucks working for the shore party should be plainly marked to assist in control. The commander of the attached truck unit should be designated to supervise the dispatching and maintenance of all trucks hauling cargo.

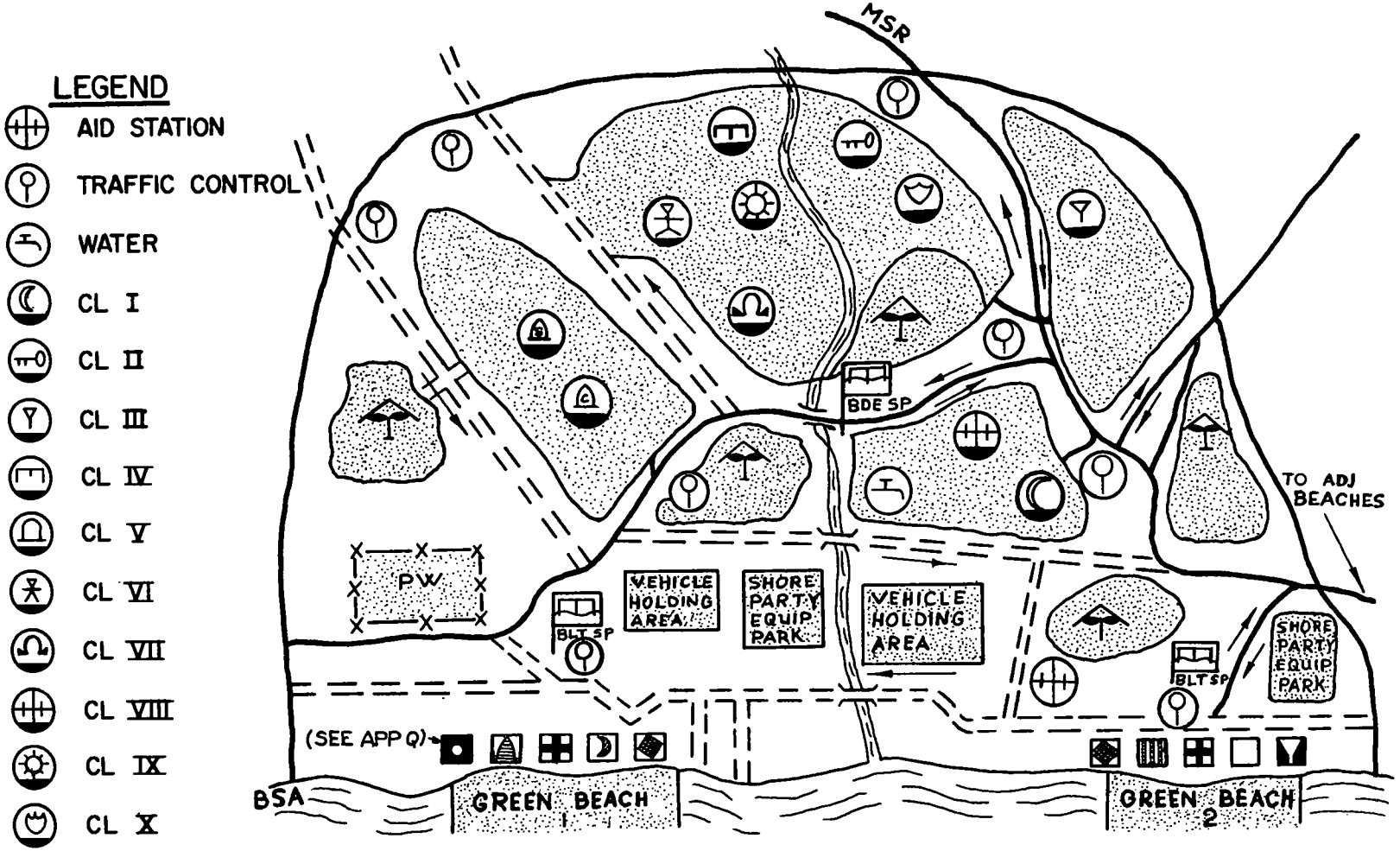
Section III. BEACH SUPPORT AREA

6–13. General

a. After the most essential beach facilities have been provided, the commander of the engineer amphibious group (division shore party commander) proceeds to organize the beach progressively according to plan. In a multiple-beach landing, one beach will probably be selected for complete development into a beach support area for the landing force (fig. 6–5).

b. The beach support area is the area to the rear of the landing force or the elements thereof, which is established and operated by

shore party units, and which contains the facilities for the unloading of troops and materiel for the support of the forces ashore; it includes facilities for the evacuation of patients, prisoners of war, and captured materiel. It may be divided into zones of action, and each zone assigned to a subordinate shore party. One



★*Figure 6–5. Type beach support area (BSA) developed by a brigade landing team shore party.*

boundary between the zones may correspond with the line dividing the landing ship, tank (LST) unloading points from the landing craft unloading points. The beach is usually divided to give the best area for unloading to the LST's; next best to the landing craft, utility (LCU), and then to the landing craft, mechanized (LCM) and landing craft, vehicle and personnel (LCVP). The amphibious lighters (vehicles of the LARC family), and amphibious tractors come ashore at a poorer part of the beach. Separate unloading points are established for tracked vehicles, and for unloading medical supplies and evacuating casualties.

c. Each brigade landing team shore party commander is responsible for all shore party activities within his zone until the division shore party headquarters assumes control of operations. At first, shore party operations are decentralized down to battalion shore party level, and then successively come under the control of the brigade shore party, then the division shore party, and finally under the corps shore party (if it is a corps operation).

d. The beach area required for efficient shore party operations varies. A division shore party will need about a square mile of area initially for temporary dumps, with at least 1,000 yards of beach frontage. The requirements cannot be firmly stated, however, since they will be determined by the type of beach, the tactical situation, and the service and storage area necessary. The size of the beach support area must also be limited to an area that can be defended by available manpower against an enemy attack or counterlanding. The bulk of supplies stored in the beach support area consists of combustible explosives such as ammunition and POL, which require dispersion. Ammunition and POL supplies normally are separated by all other classes of supplies. Particularly wide dispersion is necessary if the enemy has strong air or nuclear capabilities.

e. From the beginning of the assault to the end of the operation, the primary objective of all concerned, both engineers and assault troops, is to keep the beach clear. Congestion must be avoided, and lateral movement is limited, usually along specified one-way roads. All efforts of the shore party are directed toward obtaining a proper rate of unloading, to provide effective support for the landing force, and to permit a quick discharge of shipping.

f. Emergencies will arise that demand the complete cooperation and maximum effort of everyone working on the beach, regardless of branch, service, or primary duty. Army personnel must be ready to assist the navy in retracting boats, removing underwater obstacles, and performing other normal navy functions. Similarly, the navy personnel must be available for emergency employment on tasks usually performed by the army.

6–14. Organization of the Beach Support Area

a. In organizing the beach support area, tasks are performed in the following general priority:

(1) Mine and obstacle removal.
(2) Exit and lateral roads.
(3) Information center.
(4) Temporary dumps and unloading points.
(5) Communications center.
(6) Vehicle assembly area (dewaterproofing and emergency maintenance).
(7) Aid and evacuation station.
(8) Helicopter landing facilities.
(9) PW collecting points and evacuation.
(10) Water points.
(11) Bivouacs and vehicle parks.
(12) Perimeter defense.
(13) Beach assignment of landing craft.
(14) Command post.
(15) Perimeter road.

b. Many of these activities are performed simultaneously, and not necessarily in the sequence indicated. Installations established and operated initially by the shore party, such as dumps and PW collecting points, are later taken over by other units as the beach support area is consolidated.

6–15. Roads

a. Beach exit roads leading from the surf line to solid terrain must be pioneered before heavy vehicles are landed. They furnish an avenue of exit for vehicles to roads, to areas of cover or concealment, or to open country across which vehicles can disperse. If possible, beach exits connect with the existing road net. In cutting exits for beach roads through banks, sufficient cut must be made to prevent the loose sides from crumbling and blocking

the road. This clearance should generally not be less than the depth of cut. A further cut to permit foot traffic off the road is also desirable. Roads should have a minimum slope, even if turns must be made. When matting is used on a steep slope, heavy vehicles tend to pull the matting under them. To prevent this, beach exit roads must be constructed with a minimum grade. To accomplish this, it may be necessary to extend the road length and/or include turns.

b. Lateral roads are needed to connect all unloading points and inland areas. As soon as possible, a two-way lateral road should be constructed to the adjacent beaches. This will provide for the movement of supplies that may require diversion.

c. The road net in each BLT area should provide at least two roads leading from the beach to the dumps and a road returning to the beach. Roads leading from the water must start at the low-water mark. An apron at least 40 feet wide from low to high water lines should be provided at the water end of the road, so that landing craft do not have to hit the beach entrance with absolute accuracy at every beaching.

d. A reinforced division landing force has more than 4,000 vehicles, a proportion of one vehicle for every four or five individuals. Adequate roads rarely exist in a landing area for this number of vehicles. Roads must be built over loose sand, marsh, and soft ground to carry all types of vehicles and a heavy flow of traffic. To reduce road and vehicular maintenance problems, a road should be smooth, level, and as well drained as possible. This is usually done following initial cuts and rough leveling, by back blading (driving the dozer in reverse over the road, with the blade trailing the surface).

e. Temporary routes are laid out in accordance with plans for future base development, consistent with the tactical requirements of the landing force. Engineers of the shore party task organization perform austere engineer work on all road tasks. Follow-on engineers of corps and army perform the more complex and refined engineer tasks when brought ashore.

6–16. Surfacing Materials

Material used for surfacing beach roads or landing points should be light, simple to lay, and not bulky. Metal-track surfaces can be laid rapidly and easily, with a minimum of equipment, and do not require highly trained specialists to install them. Suitable materials include pierced-steel and pierced-aluminum planks, landing mats, and assault trackway. Pierced-steel plank is customarily laid upside down. This gives a roughened surface for traction, and results in less buckling. Metal planks may be used for a heavy-duty road over muddy or swampy ground if a double layer is employed, and the subgrade is carefully prepared and drained. In addition, a variety of expedients may be employed such as corduroy, chicken wire, link mesh, and brush.

6–17. Traffic Control

a. Traffic control in the beach support area is handled by the military police, who work closely with personnel of the information center, and with the headquarters of the shore party. Initially, all military police traffic control activities are directed by the shore party commander in his zone. When beach consolidation reaches a point where overall traffic control is desirable, the military police revert to the control of their unit commander, and operate directly from division shore party headquarters. Military police are kept informed of the locations of command posts and installations, and of the situation, so that they can provide information service at the traffic control posts (TCP).

b. Troops and mobile equipment not belonging to the shore party must move out of the beach support area without delay. There is a tendency for the vehicles of headquarters units, artillery, and trains to assemble on the beach until their commanders have completed forward reconnaissance. Military police must keep vehicles moving out of the beach support area, and keep sites selected for shore party installations free from other troops and vehicles.

c. In the first phases of beach operation, most of the traffic is one-way inland and one-way return. Gradually, the amount of supply traffic and returning empty vehicles increases. When the majority of combat troops have advanced inland, traffic circulation plans are put into effect and rigidly enforced. Traffic is kept moving and dispersed as much as the terrain and road net permit. The best and shortest routes from the beach to supply dumps are assigned to loaded amphibious

vehicles and trucks. Returning empty vehicles are routed over alternate roads, even if those roads are longer. Cross-traffic is held to a minimum. If possible, roads leading to dumps should not cross the main supply route.

d. Each beach exit has an amphibious vehicle or truck control station where cargoes and destinations are verified, and drivers are instructed on the route to follow. On returning, each driver reports to a vehicle assembly area for his next mission. New drivers are given a simplified sketch to show the route from beach to dump and return.

e. Signs are erected by the shore party for each supply point, command post, and other installation under shore party control, as well as to mark routes, beach exits, and the directions to tactical units. It is particularly important to post selected routes to areas provided for the assembly of transient units. In the early stages of the operation, when large numbers of men and vehicles, and hundreds of tons of supplies are coming ashore. the proper placement of signs is essential to relieve congestion on the beach.

6–18. Vehicle Assembly or Holding Areas

a. Vehicle or holding assembly areas are established close to beach exit roads, near the beach, but far enough inland so that beach activities are not hampered. If necessary, suitable terrain is cleared and leveled by the shore party for this purpose, and hardstands are provided by the use of expedient surfacing materials.

b. At the beach assembly areas, dewaterproofing facilities are established by the provisional equipment and maintenance platoon where vehicles coming through the surf can be checked before proceeding inland. Only the minimum of maintenance and dewaterproofing is performed, to enable the vehicle to proceed to its unit assembly area. Complete dewaterproofing must be done beyond the beach area, to avoid congestion.

6–19. Salvage and Emergency Maintenance

a. Tractors and personnel from the provisional engineer platoon assist vehicles through the surf and soft sand. When LCM's and LST's ground with their bow ramps in deep water, vehicles aboard are towed off with a waterproofed tractor.

b. Equipment and vehicle repairmen from the provisional equipment and maintenance platoon perform emergency repairs and maintenance on stalled vehicles during the early stages of the landing. Priority is given to equipment and vehicles which can be returned to use most quickly, and are most essential to current activities. Salvage and maintenance must be performed rapidly, and must not be allowed to interfere with the unloading.

c. The division shore party commander establishes a salvage collecting point on the beach for abandoned and reclaimable equipment. Enemy equipment of possible future usefulness is also assembled at this point.

d. The beach support area is likely to be cluttered with debris caused by the prelanding bombardment. Some shore party personnel may have to be diverted to clear up the beach. Stragglers, awaiting return to their units, may be formed into working parties to remove debris that is interfering with beach operations.

e. The recovery of lifejackets discarded on the beach is given a high priority. Collecting details are formed, and trucks of amphibious lighters are assigned to the detail, if available, for this mission.

6–20. Information Center

a. The information center is centrally located, preferably near the water's edge, at the entrance of a main beach exit road. It must be marked by a large, conspicuous sign. Initially, the information center may be located at the command post of the BLT shore party. The center is manned by personnel from the operations section of the engineer amphibious battalion and the attached military police. When the headquarters of the division shore party is opened ashore, information centers are established and directed by the staff of the engineer group and operated by the military police.

b. Information is provided concerning traffic conditions, and the location of units, dumps, and supply points in the beach area. A corrected copy of the beach support area layout is maintained, and situation maps are kept current with information about the tactical and logistical situation, and the location of units.

c. For the convenience of observers and official visitors, the information center should be prepared

to provide maps, overlays, traffic plans, unit area layouts, and similar material. Some of these documents may be reproduced before the operation. It is desirable, if possible, to have liaison officers and guides available to insure that visitors are properly briefed without interrupting the work of other shore party personnel.

6–21. Command Post

a. When the BLT shore parties are consolidated into a brigade shore party, the staff of the engineer amphibious battalion sets up a command post. The shore party command post should be centrally located, with the information center nearby. The battalion adjutant, assisted by the communications officer and the headquarters company commander, directs the interior arrangement of the CP, designating the space to be occupied by the shore party commander and by each staff section.

b. The headquarters company, engineer amphibious battalion, provides for the local security and defense of the command post, including its camouflage and concealment. The standing operating procedure normally describes the defense system to be followed in normal situations. As soon as possible, the CP is dug in and sheltered, and individual foxholes are dug.

c. The message center is located where incoming messengers can find it easily, and outgoing messengers can be dispatched conveniently. Radio stations are located as near the message center as reception and transmission requirements will permit. The switchboard is placed nearby but as far away from noise and interference as possible.

6–22. Medical Service

a. The beach aid and evacuation station is organized and functions as follows:

(1) When the shore party lands, medical personnel establish an aid and evacuation station on the beach. This should be located near a road used by vehicles returning to the beach, taking the maximum advantage of natural cover and concealment, and allowing dispersion. All patients requiring evacuation are evacuated from the BLT aid station to the beach aid and evacuation station, which also handles shore party casualties.

(2) At the beach aid and evacuation station, patients are sorted and tagged. Those with minor wounds and injuries are treated and returned to their units. Patients requiring any degree of hospitalization are evacuated by amphibious vehicles, or landing craft, or by helicopters, to the evacuation control ship (LST), where they are treated, sorted, and evacuated by small boats to the casualty carrying ship (attack transport (APA) or attack cargo ship (AKA)) designated to receive that particular type of casualty. If helicopters are used for evacuation, shore engineers must clear and prepare suitable heliports in the beach support area.

(3) When the division shore party headquarters is ashore, the shore aid and evacuation stations may be consolidated into a single station. If this is impracticable, the shore party commander coordinates the function of the stations and consolidates their reports.

b. The shore party evacuation section has many specific duties. Normally, these duties are found in the SOP for the unit and in appropriate medical annexes to the operations order.

6–23. Dumps and Supply Points

a. Beach dumps or supply points are organized in two phases. Initially, temporary dumps for each class of supplies are established by the shore parties and used for the first few days of the operation. As soon as sufficient operating personnel and equipment are available, supply points are established.

b. Initial dumps are located as close to the landing points as possible, which allows both circulation of motor vehicles and localization of possible fires. They should be about 200 to 500 yards from the water's edge. If closer, they are more vulnerable to enemy bombing and strafing, and beach congestion will be increased; if farther inland, control from the beach is difficult, and the problems of beach defense become more complex. Temporary dumps should be sited so as to require the minimum construction of new roads.

c. As supplies and equipment are unloaded, they are moved immediately to the appropriate dumps.

The shore party commander keeps the TAC–LOG group informed of his capacity for handling supplies and equipment.

d. Within each dump, supplies are segregated according to type, caliber, or similar distinguishing characteristic which will permit rapid issue and inventory. Stacks should not be more than about three feet high, and well separated from each other. Fuel and ammunition must be well dispersed and, if possible, stored below ground level. Dumps must be located on firm ground with good natural drainage.

e. All personnel in charge of dumps must maintain proper records. Quantities of supplies received, issued, and on hand are reported to the shore party commander at regular intervals. The shore party commander must know at all times the level of supply in the beach dumps, and the amount remaining on board ships to be unloaded.

f. Permanent supply points are located within a convenient transportation distance from the beach, but must include an area large enough to allow for the proper dispersal of supplies when the maximum tonnage is stocked. If the enemy has nuclear capabilities the supply point area must be dispersed to the maximum extent practicable.

g. When permanent storage areas and supply points are established, the temporary dumps are continued in use until exhausted.

6–24. Prisoners of War

a. Initially, during the beach assault, prisoners are handled by the short party echelon established ashore. They are delivered by the combat units to designated collecting points on the beach. Depending upon the plan in effect, they are either retained at the collecting points or evacuated to designated ships offshore. Military police, working closely with the shore party headquarters, operate the collecting points, which are located so as not to interfere with other shore party activities. Casuals and walking wounded are used as much as possible to provide prisoner guards.

b. When the division shore party assumes control of beach operations, a central PW collecting point is usually established. If a central PW collecting point is established, the intelligence officer of the highest landing force headquarters established ashore is notified of the location. Every effort is made to dispatch as many PW's as possible to the transports before shipping leaves the area.

c. All commanders are responsible that the treatment and care of prisoners conform to the Rules of Land Warfare. Except when labor definitely benefits the prisoners, they must be credited with pay for work performed. They must not be used for work that is unhealthful or dangerous, nor can they be employed to make or transport arms and munitions. If the shore party is required to use PW labor, medical care, food, water, sanitation, quarters, and security must be provided.

d. Wounded prisoners are processed through the medical evacuation chain. Since they are an excellent source of information, shore party medical personnel and unit intelligence officers cooperate closely in processing prisoner casualties. Interrogation teams are stationed at the evacuation stations to interview wounded prisoners.

6–25. Evacuation of Civilians

a. The shore party may be required to evacuate civilians from the area of operations. If the movement is for a short distance, shore party landing craft may be used. Close coordination with the navy will be necessary. Usually, this type of evacuation will be directed by the headquarters of the division shore party.

b. The landing force may carry several tons of rations and other supplies for the relief of the civilian population. This will require additional dumps and personnel. Arrangements for the issue and safeguarding of these supplies will be coordinated with civil affairs personnel attached to the division shore party for the purpose.

6–26. Stragglers

During the initial stages of the landing, stragglers may be assembled at collection points near the command posts of the shore parties, and either returned to their parent units or held until the division military police establish routine straggler collection procedures. Military police attached to the shore parties provide for initial control of stragglers. Stragglers are put to work in the beach area until they are returned to their units.

6–27. Water Supply

a. Normally, each individual taking part in the assault carries two filled canteens, and units bring in filled 5-gallon water cans. If water is not available ashore, empty water cans are either returned to the transport or a navy water tanker for refilling, or are refilled from tanks installed in landing craft. Amphibious lighters may be fitted with a navy pontoon cell, which is used as a tank to bring fresh water from a ship offshore to a distributing point on land.

b. As soon as possible after landing, the personnel of the water purification teams of the attached engineer battalion (army) must establish water points. These should be located at a source that is accessible by a suitable road, provides an all-weather parking area off the road for trucks waiting to secure water, and is near a class I supply point. One water point should be near the beach, to serve troops in the beach support area. If all water for the landing force is secured from the beach support area, the division engineers may assist the shore party in operating water points, or may establish additional water points. The division is capable of operating five water points.

c. Locating water sources, and purifying and storing water, are normal engineer functions. The using units are responsible for water delivery. Medical personnel of the engineer unit providing the water points determine whether or not the water is safe, and enforce sanitation regulations.

6–28. Helicopter Landing Facilities

An important shore party engineer function is construction and maintenance of helicopter landing facilities in the beach support area with access roads thereto. Buildup of supplies ashore is expedited greatly by helicopter delivery from naval vessels. To facilitate aerial evacuation of patients, medical aid and evacuation stations should be located near the helicopter landing areas.

6–29. Indigenous Labor

a. If proper security safeguards can be maintained, and proper control insured, indigenous labor may be employed for unloading, stockpiling, construction, and general laboring tasks. The use of indigenous labor releases trained shore party personnel for supervision and other important duties. However, the following disadvantages must be considered:

(1) There is the possibility of pilfering and sabotage.

(2) The shore party may have to provide quarters, food, clothing, sanitary facilities, and medical care.

(3) The strength of indigenous workers may be often limited because of disease and poor nutrition and their work output may not be worth the extra burdens placed upon the shore party organization.

(4) Training may be necessary before they can perform useful work.

b. If indigenous labor is employed on a major scale, their care and control are usually undertaken by the headquarters of the division shore party, which has a civil affairs unit attached to it for that purpose. Local labor leaders should be used as foremen, and all control exercised through them. Whenever possible, local construction methods and labor organizations are used.

c. Where a language difference exists, interpreters must be provided, and all instruction sheets, forms, and signs must contain information in both languages.

Section IV. GENERAL UNLOADING

6–30. General

a. After the combat needs of the landing force have been met, general unloading begins. This is the nonselective discharge of units and cargo from the transporting vessels as rapidly as beach capacities will permit.

b. General unloading accomplishes the quick turn-around and release of shipping, and delivers the maximum total tonnage to the shore. If the ships have been loaded with correctly balanced cargoes, general unloading will provide the landing force with all types of supplies in the shortest time and with the fewest complications. Whenever possible, supplies are sent ashore in days of supply for all classes of supply. Thus, if a transport must leave the area or is sunk, a proportionate amount

of each class of supply will be on shore. When possible, each landing craft or amphibious lighter should carry only one class of supply, and only one item of that class. This facilitates distribution and handling of supplies by the shore party.

c. While speed in unloading is important, it should not be greater than the speed with which supplies can be moved across the beach to inland dumps or supply points. Beaches are generally small and become crowded quickly; if supplies pile up, they interfere with efficient shore party operation, and are subject to pilfering, or to damage and destruction by enemy action. The shore party commander may stop the landing of units, supplies, and equipment on his beach when conditions justify such action. The tactical commander must be informed immediately if this is done. Requests for deviation from the planned sequence of landing must be held to a minimum.

d. Cargo is unloaded from the ship by a ship platoon. This is an organization of laborers, either military or civilian, obtained through prior planning from a reserve combat unit, transportation terminal unit, or other predesignated unit, or from local labor sources. It is divided into details corresponding to the number of hatches on the ship, with 15 men usually being assigned to each hatch.

6–31. Commencement of General Unloading

a. No predetermined time can be set, in planning, for the start of general unloading in any particular operation. Changes in enemy dispositions, unknown or unforeseen obstacles, changes in the landing force schedule, weather conditions, and other variables prevent any prediction as to when general unloading will become feasible.

b. During the ship-to-shore operation, general unloading will be indicated when the following conditions have been met:

(1) The scheduled and on-call waves have landed, and the attack is progressing satisfactorily.

(2) A sufficient number of nonscheduled serials have been landed for support of the attack, the floating dumps have been landed, and enough supplies are stocked in dumps to reach the preplanned levels by classes, sufficient to supply the landing force for a determined period.

(3) The beaches and dumps are organized and prepared so that large amounts of any class of supplies may be moved rapidly across the beaches and placed in dumps; personnel and equipment can be landed with assurance of adequate space for bivouacs, maneuver areas, and storage.

c. When these conditions have developed, the landing force commander recommends to the naval amphibious task force commander that general unloading be commenced. When the order is given to begin general unloading, the TAC–LOG groups dissolve. The tactical members are relieved, but certain of the logistical members remain aboard the control vessels, continuing their functions. Transports then start to unload their cargoes into landing craft.

6–32. Emergencies During General Unloading

The initiation of general unloading does not prevent further selective unloading if an emergency arises ashore. For example, an urgent need may arise for antiaircraft ammunition in an unusual quantity. All efforts are then concentrated on unloading the ammunition. This is done, however, at the expense of other classes of supply, so that another shortage may develop which requires further selective unloading. One supply dump after another may become overburdened, preventing the shore party from operating at maximum efficiency. Selective unloading is practicable only when ships are loaded so that critical cargo is readily accessible, can be easily identified, and can be unloaded in sufficient quantities to meet the greatest demand anticipated, without first having to move other types of cargo. Ammunition is the main class of supply loaded on assault shipping for possible selective unloading. When the vessel is loaded, ammunition is segregated by type and quantities to permit selective unloading if the need arises.

6–33. Cargo-Handling Rates

a. The time required for unloading depends upon many factors, including—

(1) Amount of cargo to be unloaded.

(2) Characteristics of the ships involved.

(3) Handling gear available.
(4) Landing craft available.
(5) Experience of ship's crew and shore party.
(6) Size of the shore party.
(7) Weather conditions.
(8) Distance of cargo ships from the beach.
(9) Enemy air, ground, or naval action.
(10) Beach characteristics.
(11) Tide effect.

b. Where general unloading is conducted without active enemy opposition, the lighterage of an entire transport division usually is concentrated first on unloading the APA's, and then the AKA's. Under good conditions, all the APA's will be discharged by the early evening of D-Day, assuming a dawn H-hour, and unloading of the AKA's will be under way. The APA's can leave the area, if their organic landing craft are not needed for lighterage. AKA's will be unloaded by the early morning of D plus 1, and AK's from 12 to 24 hours later. LST's may be completely discharged by nightfall of D-Day under ideal conditions. These figures are based on typical operations, conducted in the past, and are given solely for the purpose of illustration.

c. Hatch crews on the cargo ships are composed normally of personnel from the transportation terminal service companies, who first stevedore the ships on which they arrive, and then are shuttled to other ships for unloading. An average discharge rate is five hatches at 12 short tons per hour, or 1,200 short tons per 20-hour working day. Actual hatch discharge rates depend on the type of cargo being unloaded at any particular time. Hatches are usually worked two 10-hour shifts a day.

6–34. Unloading Equipment

a. Importance. The rate and efficiency with which cargo is handled across the beach depend largely upon the amount of unloading equipment in use by the shore party. This equipment normally is organic to the engineer amphibious battalion, transportation terminal service companies, and other units forming the shore party task organization.

b. Cranes.

(1) Cranes are essential for handling heavy lifts, such as boxed vehicles, machines, fuel in drums, and similar items which cannot be loaded or unloaded by manpower alone. The engineer amphibious battalion has organic rough terrain, wheel mounted cranes capable of handling 20 tons. Additional crawler and truck mounted cranes and operators are required in normal operations, and usually are secured from the attached engineer light equipment company and combat battalion.

(2) The crawler-type cranes generally are stationed on the beach near the surf line, to take cargo from the landing craft and place it in waiting trucks. They may also be used at offshore transfer points. Truck-mounted cranes usually are employed at the beach dumps. A crane and its crew generally can handle about ten tons of cargo and equipment per hour. Under good conditions, a crane can handle about 75 tons a day when lighterage is used, or about 150 tons a day in dockside unloading. All cranes should have two sets of slings, of all types, and an adequate number of chains and hooks. Each crane should be provided with at least 25 additional cargo nets, so that the net does not have to be removed from a cargo load until the load has been delivered to the dump. Frequently, a temporary platform is improvised for a crane to prevent interruption of operation by surf action.

(3) To supplement cranes, gin poles or A-frames may be constructed, as described in TM 5–725.

c. Barges, Piers, and Causeways. Naval amphibious construction battalions provide pontoon cells which can be assembled into floating sections for use as barges, causeways, or piers. Pontoon cells are easily assembled into barges and propulsion is provided by large outboard motors. When required and when conditions are ideal, pontoon cells may be assembled and used as piers. Causeways are also formed by the pontoon cells. Sections of these causeways are normally side-carried on LST's to the assault area.

d. Tractor-Dozers.

(1) Tractor-dozers are used during unloading operations to—tow sled pallets out of land-

ing craft; salvage vehicles stalled in the sand or shallow water; remove tree stumps, debris, and similar obstructions at the water's edge; and tow artillery, heavy equipment, and trailers without prime movers, across the beach. In an emergency, they can be used to push broached or stranded landing craft back into water that is deep enough to float them.

(2) When landing ships must let down their ramps in wet sand or shallow water, the tractor-dozers are used to extend sand causeways to the ships. The sides of these causeways are revetted with sandbags, logs, or fuel drums.

(3) A 3-man crew is desirable for each tractor-dozer. Two men assist the driver by hooking and unhooking tow cables, and in guiding the tractor-dozer. With proper teamwork, the driver should never have to dismount, and the tractor-dozers should be in continuous operation.

e. Other Equipment.

(1) Forklift trucks are useful for cargo handling both on the beach and in dumps. Firm surfaces must be provided if the trucks are not of the tracked or rough terrain type.

(2) Sled pallets carry a normal load of 2,000 pounds. They may be moved through the surf or over any beach which can be crossed by a LARC or LVT, and may be preloaded with rations, water, fuel in 5-gallon cans, or ammunition. When normal methods cannot be used, supplies may be loaded on floating pallets and towed in by landing craft or landing vehicles.

(3) Roller conveyors are valuable in unloading smaller items, particularly rations. Improvised wooden chutes, skids, and troughs may be made if roller conveyors are not available in sufficient quantity.

(4) Large numbers of sandbags should be provided for the construction of causeways and other purposes. Sandbag causeways are rapidly installed, but endure only a short time and ordinarily must be replaced daily.

(5) Nets, slings, and other equipment coming ashore with loads, must be returned to ships at once. A shortage of these items aboard ship will delay cargo discharge at the hatches.

6–35. Amphibious Lighters

Shore parties usually will have transportation light, medium, or heavy amphibious companies attached to them. The LARC–V, LARC–XV, and LARC–LX, organic to these units, are excellent combinations of lighterage and limited motor transport. They are used in logistics over the shore operations (LOTS) to—

a. Transport troops, equipment, and supplies from the transport area to and across the beach to beach dumps. In an emergency, the LARC may be utilized to transport equipment and supplies inland from unloading points.

b. Evacuate patients to receiving ships.

c. Provide floating dumps for critical supplies during the assault.

d. Transport troops and cargo ashore from a transfer line.

6–36. Cargo Transfer Line

When landing craft cannot beach because of obstructions in the landing approaches, such as reefs, sandbars, or rocks, a transfer line is established just seaward of the limits of safe navigation for landing craft, and out of range of enemy small-arms fire. At the transfer line, personnel and cargo are transferred to amphibious vehicles for movement to the beach. Loads which consist principally of cargo are transferred by shore party personnel or special working details stationed in boats at the transfer line. Transfer of cargo may be facilitated by using short boards as chutes. In the later stages of the operation, small floating cranes may be available, or cranes mounted on pontoon barges may be used. Organization of a typical transfer line is illustrated in figure 6–6. Control points are used to release LVTP5's to the transfer line as outlined in paragraph 7–18.

6–37. Resupply Shipping

a. Normally, the landing force carries supplies sufficient for about 2 weeks of combat operations. This provides a reserve if the planned supply

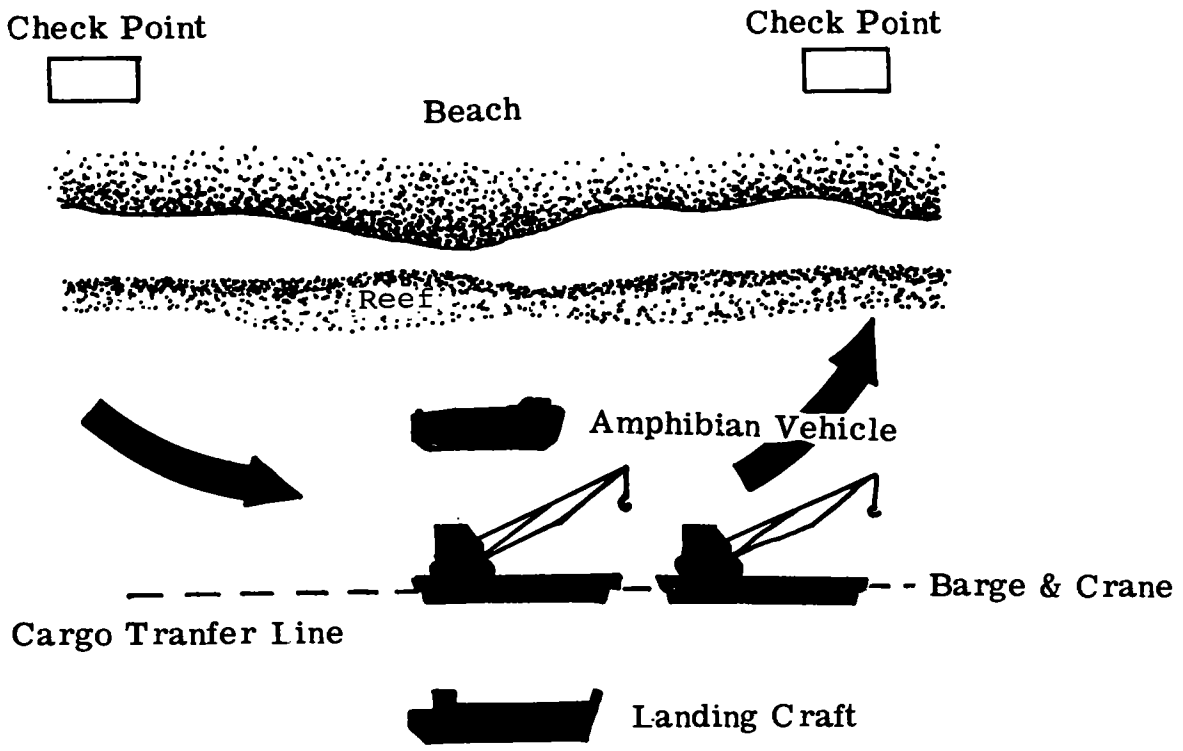


Figure 6–6. Organization of the cargo transfer line.

buildup is interrupted by enemy action or adverse weather. The decentralization of supply services ashore also requires a high level of all classes of supply in the initial phase of the operation.

b. Resupply convoys usually begin arriving within a week after landing. These consist of vessels carrying balanced loads of all classes. They may be unloaded selectively or in bulk.

c. Resupply may also be provided by landing ships directly from embarkation points or cargo assembly areas. These ships may carry preloaded trucks, which go directly to beach dumps upon landing, and require no cargo handling by the shore party at the landing points. Rear area unloading details may accompany landing ships, returning to the far shore with the empty ships.

6–38. Cargo Security

a. All shore party personnel must be alert to prevent pilferage and sabotage. This is especially important when native personnel are used to assist in unloading. Items such as gasoline, food, clothing, post exchange and special service supplies, tires, tubes, automotive parts, beverages, and medical supplies are particularly sensitive to pilferage, since they are readily adapted to civilian use. Damaged or broken containers invite theft. They should be segregated and kept under guard pending issue. All supplies on shore must be guarded to prevent looting and pilfering. The beach area must be kept clear of personnel not required to be there by their duties. If civilians are hired, they must be issued passes and a system must be established to control their movements. Military police provide security for cargo easily subject to pilfering through patrol and guard activity within their capability. Guards will be stationed in those areas and locations where pilferage is most likely to occur.

b. Handling mail is a special problem that requires close coordination between the shore party headquarters and the postal sections of all units. Arrangements are made to safeguard mail in the beach area until it is delivered to authorized personnel from the units.

Section V. RECORDS AND REPORTS

6–39. General

The first few days of the amphibious assault are normally the most critical. With part of the landing force ashore, part still aboard ships, with supplies and equipment at minimum levels, and things being in a constant state of change, it is essential that commanders have certain information readily available to use as a basis for making tactical decisions concerning future conduct of operations ashore. The tactical commander and his staff are kept informed of the combat service support situation by timely reports from the shore party commander.

6–40. Records

a. Each shore party headquarters maintains simple but complete records of its activities. Requirements vary but the following are typical:

(1) Continuing inventories of supply points.
(2) Status of unloading of vessels offshore.
(3) Records of units, equipment, and supplies that have crossed the beach.
(4) Data on patients processed.
(5) Data on PW's, stragglers, and civilians.
(6) Shore party equipment availability.
(7) Status of beach development operations.

b. All dumps and supply points must maintain proper records of supplies received, issued, and on hand. The shore party commander must know at all times the level of supplies in dumps and supply points. These records not only keep the shore party commander informed of his level of supplies but allows for stock control and provides for locating supplies to meet user demands and predict supply replenishment requirements. The records also are a basis for periodic and informal reports to higher headquarters. See supply point operations plan, appendix P (app 7 to Shore Party Plan).

6–41. Reports

a. Only essential spot reports are made during the initial stages of the landing. Normal reporting is initiated after the division shore party is established ashore. Shore party commanders must insure that all units or elements of the shore party responsible for activities within the beach support area submit timely feeder reports. Sample report forms are shown in appendix P (app 10 to Shore Party Plan).

b. Files of all reports, messages, or other written material are maintained at the shore party command posts and alternate command posts. In addition, the following charts are maintained at both headquarters:

(1) Situation map.
(2) Beach development map or chart.
(3) Status of scheduled, on-call, and unscheduled waves or serials.
(4) Status of supply points.
(5) Status of vessels.

Section VI. SHORE PARTY ADMINISTRATION

6–42. Control

a. Shore party operations require close supervision and control by the battalion commander and his staff. They must insure that all elements are working at top performance, that equipment is properly allocated, and that bottlenecks are eliminated promptly. The operations officer and logistics officer of the engineer amphibious battalion, and their assistants, have particularly exacting duties, especially in the early stages of beach operations.

b. The operations officer must—

(1) Insure that labor and equipment are utilized promptly and efficiently to unload lighterage.
(2) Direct the organization of the shore party into balanced shifts, making sure that each shift receives adequate meals, but that messing arrangements do not cause excessive interruptions to unloading operations.
(3) Provide for proper maintenance of equipment.
(4) Arrange for the construction of additional landing points, causeways, and jetties needed to facilitate efficient unloading.
(5) See that truck drivers are provided with road maps, that routes are clearly marked and understood, that turn-around times

for trucks at the dumps are not excessive, that shore party trucks are not diverted to other uses.

(6) Establish transfer points for transfer of cargo from LARC's to trucks, insuring that this operation is speedily conducted.

(7) Arrange for adequate road maintenance.

(8) Arrange to keep military police at traffic control points, and personnel manning information centers, fully informed of the situation.

(9) Maintain liaison with dumps, keeping informed of their activities, and insuring that trucks are properly unloaded and returned.

(10) Coordinate with military police on operation of prisoner-of-war collecting points.

(11) Keep all elements of the shore party informed of the situation and of changes in plans and orders.

(12) Plan the tactical employment of shore party troops in defense of the beach support area.

(13) Prepare and submit the required beach operation reports.

(14) Provide adequate beach lighting for night operations.

(15) Maintain cognizance of discharge rates ashore.

c. Until the normal combat service support system has been established, the logistics or supply officer must direct all operations of the dumps or supply points. This responsibility requires that he—

(1) Maintain a dump for each class of supplies; plan the dumps to facilitate transportation of cargo from the beach and issue to the using units.

(2) Provide adequate labor and equipment at each dump to insure prompt unloading and turn-around of trucks.

(3) Keep a running inventory of each dump, showing the supplies received and issued.

(4) Insure that dumps, and storage piles within dumps, are dispersed, and that provisions have been made for fighting fires.

(5) Set up a lighting system for night operations.

(6) Collect the daily report from each dump and submit a consolidated daily status of supply report to the operations section. These reports are in addition to others which may be prescribed by the shore party headquarters.

6–43. Working Conditions

The work output of shore party personnel will be affected by the weather, climate, terrain, and enemy action. Continued snow or rain, intense heat or severe cold, swarms of insects, muddy or frozen ground, all reduce the amount of work that can be performed efficiently. Every effort should be made to provide for the comfort of the men, and to improve their working conditions. Shelter and clothing suitable for the climate should be provided, and men should be given as much opportunity for rest as the situation allows.

6–44. Two-Shift Operation

a. Beach operations require 24-hour activity. On D-day, all members of the shore party work at maximum speed to organize the beach and to unload assault shipping. When the initial combat needs of the landing force have been met, the shore party is reorganized to provide continuous operation in 12-hour shifts. Each shift is organized to operate independently of the other.

b. The operator of a vehicle or a piece of equipment is assigned to one shift and his assistant to the other. In this way, vehicles and equipment are always operated by assigned personnel. Maintenance personnel are also divided into two balanced teams, one for each shift, so that emergency repairs can be accomplished at any time.

c. When the shore party operates on a 2-shift basis, routine administration must be kept to a minimum. Clerical and headquarters personnel are employed on the beach for supervisory and labor tasks. In a well trained engineer amphibious battalion, all enlisted men, regardless of normal assignment, will be capable of performing the duties of vehicle drivers, equipment operators, winchmen, and similar specialists. Unit commanders insure that headquarters personnel maintain themselves physically fit for arduous labor and are fully aware that they may be required to perform such duties at any time during beach operations.

6–45. Night Operations

a. At night, beach operations are conducted under artificial illumination. If possible, shift changes should take place in daylight hours, so that night-shift personnel can become oriented before darkness. Any night operation hazards should be clearly marked before nightfall.

b. An adequate warning system, and central control of floodlighting equipment, are essential, so that the beach can be blacked out in case of an enemy air attack.

6–46. Messing

a. Initially, shore party personnel carry combat rations ashore. As soon as conditions permit, company kitchens are established, and hot food is transported in insulated containers to the working areas.

b. When 2-shift operation is initiated, mess personnel are also divided into shifts. Usually, the mess steward supervises the day shift, and the senior cook is in charge of the night shift. Breakfast may be served to men going on shift, and combat rations distributed to them, with supper served immediately after the shift completes its tour of duty. Hot meals served on the job are preferable to combat rations and should be provided whenever possible.

c. In addition to providing meals for its own personnel, the battalion headquarters mess will be required to feed observers, casuals, correspondents, and similar transients. Additional rations should be secured and kept in reserve for unexpected visitors.

6–47. Sanitation

Special attention must be given to beach sanitation from the time of landing. The large numbers of troops on the beach require strick sanitary discipline and adequate facilities. Latrines, properly marked; should be dug as soon as possible, and made accessible to debarking troops. Shore party medical personnel must exercise close supervision over sanitary measures throughout the beach support area, particularly in the vicinity of medical installations, and in other places where concentrations of personnel occur.

6–48. Bivouac Areas

Shore party bivouac areas are established in the vicinity of the beach perimeter, so that defenses can be manned readily in the event of an enemy attack. Bivouac areas must also be provided for transients.

Section VII. DEFENSE OF THE BEACH SUPPORT AREA

★6–49. Beach Support Area Defense

a. Responsibility. The BSA defense mission normally is assigned to the shore party commander in the landing force operation order. BSA defense plans are based on the planned scheme of maneuver and the anticipated tactical situation during the assault phase. In preparing the defense plan, the shore party commander considers the use of all personnel located in the BSA, regardless of whether they are a part of the shore party task organization. In internal defense operations, the shore party commander must insure that the defense plan provides for the selective application of firepower in order to protect the local civilian populace and their material from unnecessary damage or destruction.

b. Beach Support Area Defense Plan. The BSA defense plan is generally included as an appendix to the shore party plan of the operations order. This plan is broad in nature. The details of how the shore party commander plans to organize his defense is contained in an annex to the shore party operations order, or is issued as a separate operations order by the division shore party commander. Regardless of how it is issued, the BSA defense plan calls for an area defense, assigning area responsibilities to subordinate shore party units. Within these areas of responsibility, the senior shore party officer has complete responsibility for the coordination of all ground defense elements that may be located therein. The BSA defense plan consists of the following essential elements:

(1) *Task organization.* The task organization parallels the shore party task organiza-

tion. The shore party organization serves as the nucleus of the BSA defense force.

(2) *Assignment of missions.* Normally, the area of defense assigned to a shore party unit corresponds with the unit's beach support area. Areas of responsibility are assigned by the unit to subordinate shore parties.

(3) *Mobile reserve.* Each BSA organizes within itself a mobile reserve. This force is organized for employment in the BSA.

(4) *Artillery and naval gunfire support.* While the shore party has no capability to provide for artillery or naval gunfire liaison personnel, it can arrange during the planning stage with the tactical unit ashore for concentrations of fire within the BSA and its approaches.

(5) *Antimechanized defense.* The shore party has a limited antimechanized defense capability, having available only weapons organic to the companies of the engineer amphibious battalion. Generally, prepared positions are constructed by the shore party for organic rocket launchers.

(6) *Offshore defense.* The beach party plus the landing ships and craft in the area off the beach are coordinated in the BSA defense. Plans are also coordinated with offshore transfer barges equipped with heavy caliber automatic weapons.

(7) *Defense conditions.* Generally, three conditions are given in the defense plan whereby the shore party assumes varying degrees of defensive readiness. These are:

(*a*) *Condition I.* All defensive positions are manned and supporting units alerted. All personnel in each BSA are available for defense. Mobile reserves stand by in position. Evacuation of casualties is expedited. Unloading operations cease. No vehicular traffic is permitted except in emergency or to transport casualties.

(*b*) *Condition II.* Fifty percent of personnel, other than those in security sections, are made available for defense. Mobile reserves stand by in position. Evacuation of casualties is expedited. Unloading is reduced to essential items.

(*c*) *Condition III.* Minimum defenses are manned as necessary to provide internal security and control of key terrain and routes of approach. Conduct normal shore party operations.

(8) *Chemical, biological, and radiological (CBR) defense.* Plans for CBR defense of the BSA are contained in landing force operation orders. Portions of these orders as affect the shore party are referenced.

(9) *Air defense.* Plans for air defense of the objective area are contained in an annex to the landing force operations order. The shore party has no direct control over any portion of this defense. Both active and passive air defense measures are employed against enemy air attack. Principle passive air defense measures are camouflage, cover, and concealment. Active air defense is direct action taken to destroy or reduce the effectiveness of an enemy air attack and includes such measures as the firing of small arms, REDEYE, and crew served weapons at enemy aircraft. For details on the use of non-air defense weapons against aircraft, see appendix R.

(10) *Guerrilla and sabotage defense.* Instructions to the shore party security section and military police section must include defensive measures for guerrilla, sabotage, and subversive activities in the basic area. Preventive and defensive measures against these type activities are of particular importance in internal defense operations. These also would include measures taken in the event of enemy airmobile or airborne attack.

6-50. Employment as Infantry

a. The engineer amphibious battalion should be assigned infantry missions only in an emergency. In amphibious operations, the battalion may be employed to reinforce portions of the landing force perimeter, or to occupy sectors near the beach. Normally, the battalion is attached to a larger infantry unit. This provides for the proper coordination of artillery, naval gunfire, and air support.

b. Engineers have many limitations when employed as infantry. Compared to an infantry battalion, the engineer amphibious battalion has relatively few supporting weapons, such as mortars, machineguns, and rocket launchers. It cannot act as infantry, even for a short period,

without augmentation or support from other arms and services. Communication equipment and personnel are not sufficient for infantry operations. The training of

amphibious engineers stresses combat support functions, rather than advanced infantry tactics. To compensate for these disadvantages, engineer units are usually assigned smaller frontages than infantry organizations of corresponding size.

c. When released from their mission of providing amphibious mobility for the tactical units, the amphibian assault companies of the engineer amphibious battalion may be employed to strengthen the BSA defense. When the engineer amphibious battalion is committed to internal defense operations, the requirement for training to fight as infantry is increased. The engineer amphibious battalion or subordinate elements may be supporting small U.S. or receiving state (RS) forces in isolated areas and highly susceptible to insurgent attack. To insure the unit's survival, it must be capable of quickly and effectively reorganizing for ground combat. Engineer amphibious units employed in this manner may be provided additional crew-served weapons such as the M60 LMG, 60-mm mortar, 81-mm mortar, M79 grenade launcher, and 3.5-inch rocket launcher.

Section VIII. BASE DEVELOPMENT

6–51. Consolidation

a. When the subordinate shore parties have been consolidated into a division or corps shore party, the base development plan is initiated. All temporary dumps are phased out and permanent supply points are established and improved. Engineer amphibious units, augmented by nondivisional engineer units, furnish construction equipment and personnel for clearing supply point areas; dig slots and bunkers for the storage of ammunition; prepare fuel storage bays and bunkers; and generally, perform similar improvements. The road net is improved and new roads are constructed in accordance with base development plans. The engineer amphibious unit, augmented by advance detachments from the base units, builds unloading slots, jetties, wharves, bulk fuel unloading facilities, water supply installations, and storage and headquarters buildings. The division or corps area may be developed into a complex base section containing many square miles of open and covered storage, and terminal facilities for the combat service support of the tactical forces.

b. The base operating forces may consist of either naval forces under a naval base commander, or an army advance or base section which is part of an army communications zone headquarters.

6–52. Relief of the Shore Party

Relief of the shore party and assumption of command by the army base commander or logistical command commander is facilitated by the introduction of advance elements of the army base or logistical command headquarters early in the corps stage. Another factor that facilitates transition from the shore party to the logistical base phase and insures continuity of support operations is the use of combat service support and logistical command units as operational elements of the shore party. A third facilitating factor is the progressive consolidation of subordinate echelon beach support areas and their shore parties by higher echelon shore parties as rapidly as possible. If a beach support area is to be developed into an army base, the shore party is relieved of its beach support responsibilities when—

a. Sufficient land area secured inland to permit establishment of dispersed supply depots.

b. Obstacles are overcome and adequate logistical operation centers and facilities are developed to assure provision of supplies to the landing force.

c. The proper logistical and combat service support staff elements and units are established, equipped, and organized ashore to perform the logistical mission.

d. A rear boundary inland is established by the tactical commander.

e. A base or logistical command is designated to assume responsibilities within the geographical area limited by that rear boundary and the waterline.

6–53. Post-Relief Activities

When the shore party is relieved and dissolved, engineer amphibious units may be released for use

in subsequent amphibious operations, may be retained as attachments to the corps for employment in combat engineer type tasks, or may be relieved from attachment to corps and placed under command of the army base commander to coordinate and control major engineer projects and to continue combat engineer type tasks for development of support facilities. On relief and dissolution of the shore party all attached army and navy units return to control of their parent units.

CHAPTER 7

EMPLOYMENT OF ENGINEER AMPHIBIAN ASSAULT UNITS

Section I. PLANNING, EMBARKATION, AND REHEARSAL

7–1. General

The principles involved in planning for and employing the amphibious vehicles of the engineer amphibian assault companies of the engineer amphibious battalion in an amphibious operation are common to all such units (see app B–E for description and the characteristics of these vehicles). Thorough planning and proper execution are required to insure that amphibious vehicles, once committed to an amphibious operation, are embarked, loaded, and launched so as to support the ship-to-shore movement and are provided with ample combat service support in order to continue support operations. Proper allocation of vehicles within the force and careful attention to each unit's capabilities and limitations insures maximum support for the landing force during its commitment. Planning, organization for combat, liaison between units, embarkation of amphibious vehicles, a system of maintenance, and the conduct of realistic rehearsals are critical prerequisites to successful amphibious vehicle employment during the amphibious operation.

7–2. Organization for Combat

The organization of engineer amphibian assault companies for commitment to support combat and operations is determined through consideration of the mission, organization, and scheme of maneuver of the landing force, and the terrain and hydrography within the objective area. Engineer amphibian assault companies are organized within the landing force so as to best support its needs. Exploitation of the capabilities of the different classes of amphibious vehicles, and the minimizing of their limitations is accomplished during planning. Tactical integrity of engineer amphibian assault companies is retained where possible.

a. Command Relationships. The three most commonly established command relationships for the assault phase are—

(1) *Attachment.* When attached, the engineer amphibian assault company, or elements thereof, is temporarily attached to the command which is to be transported and is fully under command of that unit commander who is responsible for the operational control and logistical support of the attached engineer amphibian assault unit. For the duration of the attachment, the engineer amphibian assault unit commander performs the additional duties of a special staff officer on the staff of the supported tactical unit commander. Engineer amphibian assault companies normally are attached to a subordinate element of the division landing force only when that element is on a separate mission or requires the services of amphibious vehicles over a long period of time on a continuing basis. In addition, the inability of units below division landing force level to undertake the ponderous logistical support required by an engineer amphibian assault company must be carefully considered prior to its being attached.

(2) *Direct support.* When in direct support, an engineer amphibian assault company, or elements thereof, is under command of its parent unit, but supports another specific unit. The supporting engineer amphibian assault unit answers directly to the supported unit's requests for support. Command and logistical support of the amphibian assault unit remains with the parent unit (the engineer amphibious bat-

talion). The direct support status is normally utilized for accomplishment of a specific mission or for a specific length of time. Normally, an engineer amphibious battalion is placed in direct support of a tactical brigade. The engineer amphibious battalion, in turn, places each of its two engineer amphibian companies in direct support of each of the two assault battalions (BLT's) of the brigade landing force. For the duration of the period of direct support, the engineer amphibian assault unit commander performs the additional duties of a special staff officer on the staff of the supported tactical unit commander. The period of this direct support usually lasts from receipt of the order alerting the engineer amphibian assault unit to completion of the assault stage of the amphibious operation.

(3) *General support.* When in general support, an engineer amphibian assault company provides support to the supported force as a whole and not to any particular subdivision thereof.

b. Other Command Relationships. Various combinations of the above command relationships may be employed. As an example, part of a unit may be attached to a subordinate landing force unit, with other elements remaining in direct or general support. These various combinations of command relationships may be habitual in internal defense operations, since most operations will be conducted on a smaller scale and over greater distances than normally encountered in a conventional or nuclear warfare operational environment. Subordinate elements of a unit participating in internal defense operations also may be committed concurrently to support U.S., receiving state (RS), or third country forces employing one or more of the above command relationships.

c. Liaison. Upon receipt of an order directing support or attachment, engineer amphibian assault unit liaison officers are sent to the headquarters of the supported tactical unit to assist that commander in the employment of amphibious vehicles. The assignment of competent personnel to this liaison role is mandatory, to insure that plans include accurate information and are operationally sound regarding the employment of the engineer amphibian assault units.

7–3. Planning Requirements

Planning is initiated upon receipt of the order alerting engineer amphibian assault units to forthcoming operations. All planning is coordinated with other elements of the landing force involved in employment of the vehicle unit(s).

a. Recommendations. Engineer amphibian assault unit commanders make planning recommendations in the following areas:

(1) Shore based and afloat training.
(2) Missions and task assignments for engineer amphibian assault units.
(3) Organization for embarkation and landing.
(4) Techniques of ship-to-shore movement.
(5) Employment of amphibious vehicles ashore.
(6) Supply and maintenance considerations.
(7) Safety considerations affecting amphibious vehicle employment.
(8) Amount and type(s) of augmentation required by engineer amphibian assault unit(s).

b. Intelligence. FM 110–101 and FM 110–115 contain a detailed listing of intelligence and reconnaissance requirements for amphibious operations. The following intelligence information concerning the objective area is of primary importance to engineer amphibian assault unit commanders during planning:

(1) Hydrography including prevailing surf conditions, tides, and currents.
(2) Trafficability of the beach.
(3) Exits from the beach.
(4) Trafficability of inland terrain.
(5) Number, type, and strength of enemy beach defensive installations.
(6) Enemy offshore underwater defensive barriers.
(7) Enemy armor capabilities.
(8) Civilian populace.
(9) Enemy air capabilities.

7–4. Scheduled and On-Call Waves

a. Organizational Considerations. In the ship-to-shore movement, tactical assault units are divided

into tactical groupings for deployment. The several groups are landed in successive waves of amphibious vehicles, landing craft, or helicopters. This adds breadth and depth to the attack, and facilitates command and control over tactical units during the time of deployment. Greater breadth and depth of tactical units are employed as passive defensive measures in operations where the enemy has a nuclear capability. The nature of amphibious operations is such that while considerable prior planning can and must be accomplished, all details of the execution cannot be predetermined and preordered. This is particularly true when determining the time and place of landing succeeding tactical increments. Flexibility in the amphibious attack is vital to permit quick and forceful response to enemy weakness and to produce situations favorable to the attacker. The attack, therefore, is scheduled for execution only to the extent necessary to insure that effective force is initially directed against the enemy at the selected time and place. In order to launch the attack, the time and place of landing scheduled waves are fixed (to insure continuity in the attack) but the time and place of landing on-call waves are *not* fixed, thereby providing flexibility.

b. Composition of Scheduled and On-Call Waves. In constituting scheduled and on-call waves, it is important to include all units which are required to initiate combat ashore. On the other hand, units which are not needed in the initial assault are excluded.

(1) *Scheduled waves* are composed predominantly of elements of the assault BLT's. However, supporting units which are not a part of the BLT task organization may be included, such as engineer and artillery elements of the brigade landing team. When engineer amphibian assault units are assigned to the landing force, the leading scheduled waves consist of LVTP5's to transport the assault tactical units ashore and inland. Scheduled waves must also include other elements, such as LVTE's to form the leading wave (the first wave). When required, a tank unit may be landed in scheduled waves (in landing craft) to permit early employment.

(2) *On-call waves.* As the assault BLT's land in scheduled waves, the on-call waves are composed predominantly of the remaining elements of the assault brigade landing team. It is desirable to land the entire brigade landing team in scheduled and on-call waves. Certain division elements may be included in on-call waves to permit their timely employment and support.

7–5. Landing Documents of Significance to Engineer Amphibian Assault Units

The landing documents completed by the landing force in connection with waterborne movements from ship-to-shore are of vital concern to participating engineer amphibian assault units in both the planning and operation phases. These documents assign amphibian assault units to elements of the landing force, prescribe loads, stipulate landing formations, and, in some instances, provide for amphibious vehicle employment subsequent to the landing. FM 31–12 and FM 31–13 contain details on the preparation of these documents. Personnel of the engineer amphibian assault units assist in the preparation of these documents. Among the landing documents of specific interest to the amphibian assault units are the following:

a. The landing diagram.

b. The approach schedule.

c. The landing craft and amphibious vehicle assignment table.

d. The serial assignment table.

e. The landing sequence table.

f. The assault schedule.

g. The amphibious vehicle availability table.

h. The amphibious vehicle employment plan.

7–6. Shipping Considerations

Amphibious vehicles are embarked aboard ships of the amphibious fleet and transported to the objective area. Landing ships normally are employed for this mission. Other ships of the amphibious fleet, such as the AKA and APA, possess some capability for lifting amphibious vehicles but are limited by unwieldy loading and launching procedures and low-carrying capacity.

a. Landing Ships. The landing ships normally employed to transport amphibious vehicles are the

landing ship dock (LSD), landing ship tank (LST), and amphibious transport dock (LPD). These ships are best suited for transporting amphibious vehicles for the following reasons:

(1) They allow for more rapid loading and unloading.
(2) Embarked vehicles are readily accessible for en route service and preparation.
(3) Vehicles can be launched near the line of departure, decreasing the amount of time they must spend in the water.
(4) Troops may be loaded aboard amphibious vehicles before they are launched.

b. Ships' Characteristics. Ships of the amphibious fleet have varying internal characteristics which affect their amphibious vehicle carrying capacity. Details concerning each ship are found in that ship's "Ship Loading Characteristics Pamphlet." Prior to planning the load for any ship, its characteristics pamphlet is consulted to determine its true carrying capacity for each type of amphibious vehicle involved. Personal liaison between engineer amphibian assault unit personnel and the ship should be made when practicable, to insure maximum coordination and cooperation. Appendix J lists amphibious vehicle carrying capacities for certain classes of landing ships. These are estimates and are offered only as examples since individual ships' carrying capacities vary greatly. See appendix J also for a discussion of techniques used in loading LVT's aboard landing ships.

7–7. Embarkation of Amphibious Vehicles

a. Preparation for Embarkation. Representatives of engineer amphibian assault units attend planning conferences at appropriate landing force and naval echelons. They advise commanders on shipping requirements, and recommend methods of embarking and employing their units. Resulting decisions appear as tables, showing the types and number of amphibious vehicles to be carried by the various ships of the transport group.

b. Embarkation Plans. Plans for the embarkation of amphibious vehicles are completed prior to arrival of assault shipping. Embarkation plans peculiar to engineer amphibian assault units include—

(1) Embarkation of vehicles and crews.
(2) Embarkation of command, maintenance, and communication personnel as required to support vehicle commitments.
(3) Loading of supplies and equipment such as fuel and repair parts to support embarked vehicles.
(4) Staffing and equipping ships designated as amphibious vehicle repair ships.
(5) Preloading supported unit's vehicles and cargo.

c. Loading of Amphibious Vehicles. Details with regard to loading amphibious vehicles aboard the various types of landing ships are included in appendix J. For further details with regard to general considerations affecting embarkation, see FM 60–30.

7–8. Rehearsal Preparatory to Operations

A rehearsal is defined as that phase of an amphibious operation in which one or more exercises are conducted by the amphibious task force, or elements thereof, under conditions approximating those of the contemplated amphibious operation. It is executed in accordance with a plan which parallels the plan for the specific operation, and its participants should include all units which are to take part in the amphibious operation.

a. Purpose of Rehearsals. Rehearsals are scheduled in order to test—

(1) Adequacy of plans and familiarity of all participants with them.
(2) The timing of detailed operations such as transfer operations and debarkation of vehicles.
(3) Adequacy and clarity of the control system.
(4) Adequacy of communications and communication plans.
(5) Combat readiness of the force.

b. Amphibious Vehicle Considerations. When rehearsals are scheduled after vehicles have been embarked for the operation, the following adverse factors affecting amphibious vehicles are considered:

(1) Delay involved in re-embarking and refueling vehicles aboard landing ships.
(2) Necessary replacements of vehicles lost or damaged beyond repair during rehearsals.
(3) The additional requirement for fuel, repair parts, and other related supplies.

7–9. Movement to the Objective Area

Engineer amphibian assault unit personnel are responsible for maintenance and preparation of their vehicles for landing while moving to the objective. This responsibility is in addition to troop orientation, weapons firing, and other preparations standard throughout the landing force. Appendix L outlines the duties of amphibious vehicle crews.

a. Briefing. Personnel of engineer amphibian assault units are briefed on the operation as are all personnel within the landing force. They receive special briefing in the areas of beach condition, hydrography of the objective area, condition of inland terrain and roads, location of beach exits, and enemy defenses. In internal defense operations, the briefing should also include instruction on selective and restrictive use of firepower, psychological operations themes, civil affairs activities, use of chemical agents, and the subversive activities that may be encountered in the objective area.

b. Vehicle Preparation. During movement to the objective area, final maintenance checks and required servicing of vehicles are accomplished. These inspections include as a minimum—

(1) Prestarting checks.

(2) Recharge of batteries when required. Ship's equipment may be used for recharging.

(3) Regular operation of engines to insure their efficient state of maintenance. Under most conditions, 20-minute operation three times each week should be satisfactory. To preclude carbon-monoxide buildup below decks, all ship's blowers should be operating at maximum capacity while engines are operating. See also appendix I.

Section II. FUNDAMENTALS OF THE SHIP-TO-SHORE MOVEMENT

7–10. General

The amphibious task force commander accomplishes the movement of the landing force from transport ships in the objective area to the hostile shore through elements of the amphibious task force. Landing ships, helicopters, landing craft, and amphibious vehicles are employed in accomplishing this mission. The waterborne patterns of ship-to-shore movement of amphibious vehicles are similar to those of landing craft. Amphibious vehicles such as the LVT's possess the inherent ability to continue across the beach to inland points. These vehicles, however, have a slower water speed and are less maneuverable than landing craft.

7–11. Ship-to-Shore Movement

a. The ship-to-shore movement is that part of the assault phase of an amphibious operation which pertains to the timely deployment of troops and their equipment from assault shipping to designated positions ashore in the landing area. Its purpose is to land assault units at the proper times and places and in formations required by the landing force scheme of maneuver ashore. The ship-to-shore movement begins on order of the amphibious task force commander (upon execution of the signal, "Land the Landing Force") and is brought to a close when unloading of assault shipping is completed. The ship-to-shore movement may be divided into two periods—

(1) The assault and initial unloading period which is primarily tactical in character and must be instantly responsive to landing force requirements ashore.

(2) The general unloading period which is primarily logistic in character and emphasizes speed and volume of unloading operations.

b. Engineer amphibian assault companies of the engineer amphibious battalion transport assault personnel and emergency supplies in their LVTP5's during the assault and initial unloading period. During the general unloading period, the LVTP5's may be used in the transportation of supplies and equipment.

7–12. Sea Areas

The designation and organization of sea areas are accomplished by the amphibious task force commander. These areas are designed to provide control measures for landing craft and amphibious vehicles, as well as station and maneuver areas for various naval control groups. Certain of these sea areas are illustrated in figures 7–1, 7–2, and 7–3.

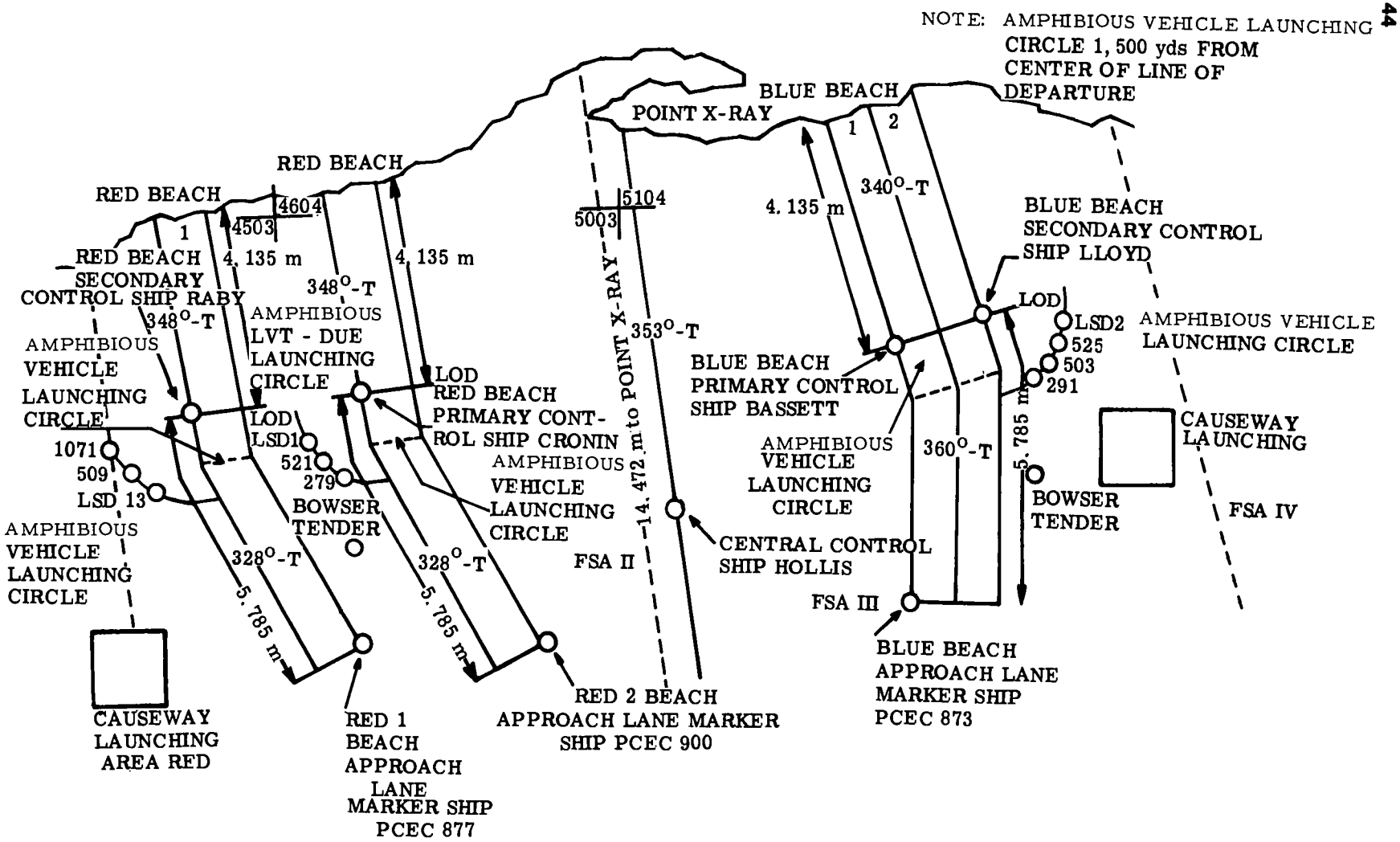


Figure 7–1. Organization of sea areas.

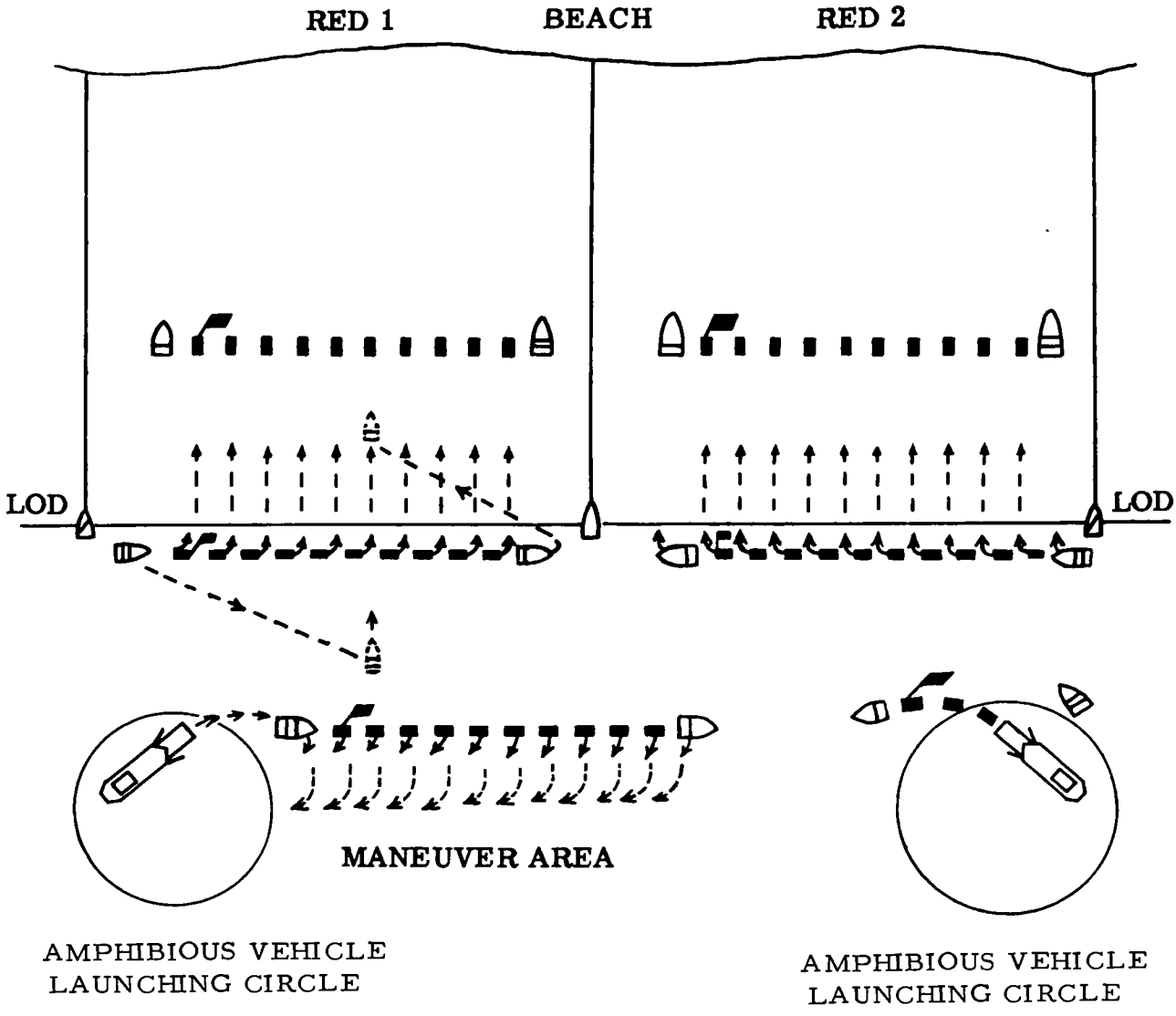


Figure 7–2. Example of debarkation, maneuvering, and movement across the line of departure.

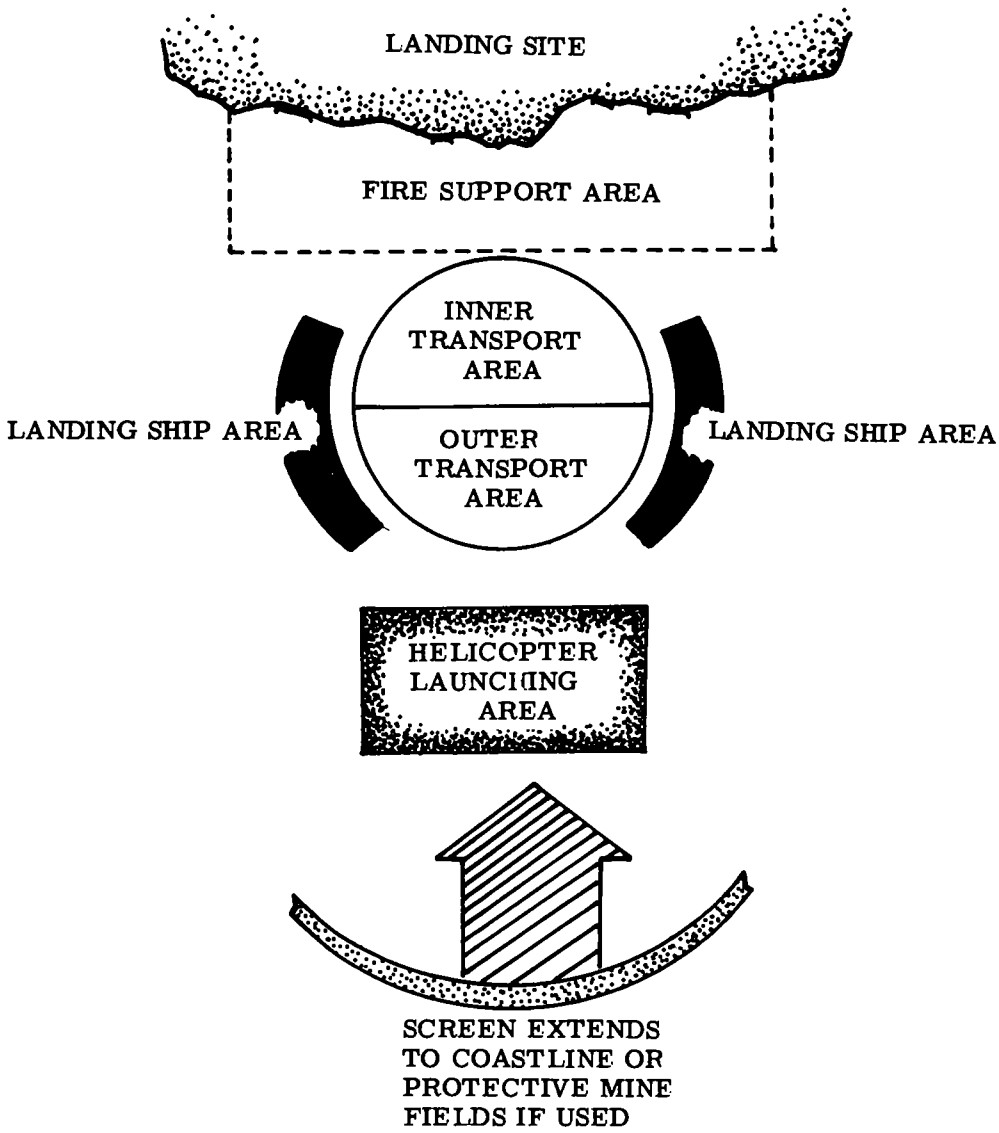


Figure 7–3. Sea areas and positions off landing beaches.

Sea areas of concern to engineer amphibian assault units in the ship-to-shore movement include the following:

a. Boat lanes.

b. Transfer areas (lines).

c. Lines of departure.

d. Approach lanes.

e. Amphibious vehicle launching areas.

f. Assembly and rendezvous areas.

g. Landing ship areas.

h. Transport areas.

i. Fire support areas immediately adjacent to boat lanes.

7–13. Naval Control Group

The mission of the naval control group is to direct, supervise, and control the landing craft and amphibious vehicles in the waterborne ship-to-shore movement. The organization of the control group is based upon the arrangement and number of beaches on which the troops are to be landed. Composition of the group normally includes the following officers:

a. Central Control Officer. The central control officer, under the amphibious task force commander, is in direct charge of the movement of the scheduled waves to the beach. After the landing of the scheduled waves, he coordinates the movement of all waterborne transportation to and from the beach throughout the remainder of the landing and the unloading. Coordination of control effort is accomplished through the assistant central control officers and primary control officers.

b. Assistant Central Control Officers. An officer designated as the assistant central control officer is assigned for each transport organization when two or more divisions are landed simultaneously. These officers are embarked in assistant control ships and coordinate the movement of landing craft, amphibious vehicles, and landing ships to their respective beaches.

c. Primary Control Officer. A primary control officer is designated for each transport organization landing an assault brigade landing team (Bde LT). These officers, embarked in primary control ships, control the movement of landing craft, amphibious vehicles, and landing ships to and from the battalion landing team (BLT) beaches. When assault BLT's are to be landed over widely separated beaches, additional primary control officers may be required for each BLT beach.

d. Secondary Control Officers. Secondary control officers, embarked in separate ships, are stationed on the line of departure to assist the primary control officers. They are usually stationed so that they mark the flank of the boat lanes at the line of departure.

e. Approach Lane Control Officers. Embarked in approach lane marker ships, these officers normally are stationed at the seaward end of the approach lanes. They control the movement of the waves between approach lane marker ships and the line of departure.

7–14. Control of Amphibious Vehicles

The techniques utilized in controlling landing craft are generally applicable to amphibious vehicles such as the LVT's. Slow water speed, limited maneuverability afloat, and limited visibility from within the vehicle necessitate some additional control measures when amphibious vehicles are employed during the ship-to-shore movement. Principally concerned with movement of amphibious vehicles are boat group commanders, wave guides and their assistants, and wave commanders.

a. Boat Group Commanders. The basic unit employed by the navy for control of amphibious vehicles and landing craft afloat is the boat group. The navy assigns an officer to each boat group as its commander and provides him with an assistant if required. Amphibious vehicles en route to the beach, and once retracted from the beach, are controlled by their boat group commander. A boat group comprises sufficient craft and/or vehicles to lift one unit, normally a BLT. During the movement from ship-to-shore, boat groups are organized into waves. A wave consists of amphibious vehicles or landing craft scheduled to land simultaneously.

b. Wave Guides. Wave guides are assigned to each amphibious vehicle wave by the boat group commander as required. They normally are assigned from the same ship on which the amphibious vehicles they are to guide are embarked. Duties of wave guides include the following:

(1) Meet amphibious vehicles debarking from landing ships and assist in forming the wave.

(2) Guide the assembled wave to its assigned position in the designated area seaward of the line of departure.

(3) Report the wave ready to the primary control officer.

(4) Guide the wave to the line of departure and cross on order of the primary control ship. Their position when guiding waves of LVTP's is based on the formation adopted by the LVTP's. Normally, one wave guide is positioned on each flank of the wave. When LVTP's are in the column or wedge formation, the wave guide may precede the wave with an assistant wave guide following it. When directing LVTE's, guides take position on the flanks of each wave.

(5) Maintain proper speed of advance as directed by the primary control vessel. Mark the limits of the boat lane in order to prevent vehicles from crossing boat lane boundaries.

(6) On reaching the limits of navigation offshore, take station on the flanks of thc

boat lane, assemble returning vehicles, and guide them to the amphibious vehicle pool, or as directed.

(7) Assist in transfer operations, if they are conducted (see para 7–18).

c. Wave Commanders. The senior amphibious vehicle officer or NCO in each wave is designated wave commander. He takes a position in the wave which best enables him to exercise command, normally in the center of the wave. Wave commanders' responsibilities include—

(1) Maneuver of amphibious vehicles and maintenance of their formation within the wave.

(2) Control of fire from amphibious vehicles.

(3) Tactical movement of amphibious vehicles inshore of the limits of navigation (once the wave guide retires).

(4) Retraction of amphibious vehicles from the beach.

d. Means of Control. Appendix Q contains illustrations of flags, lights, and markers used in the control of amphibious vehicles in the ship-to-shore movement.

7–15. Liaison During Landing Operations

It is the responsibility of the navy to insure the landing of waves on assigned beaches at the scheduled times. Liaison personnel from the landing force assist in accomplishing this mission through TAC–LOG groups. Operating from control ships, these liaison groups furnish advice to naval control officers in matters pertaining to the landing force. Personnel of engineer amphibian assault units included in TAC–LOG groups advise on the employment of the amphibious vehicles. TAC–LOG personnel furnish their own means of communication with their parent organization. In addition to TAC–LOG, liaison personnel of engineer amphibian assault units may be assigned to boat group commanders and wave guides for assistance, as well as to units being lifted.

7–16. Amphibious Vehicle Identification

Amphibious vehicles are always identified as to unit designation. During the conduct of amphibious operations, vehicles may also be identified as to boat group, wave, and destination, in order to facilitate their control.

a. Vehicle Markings. All four sides of amphibious vehicles are lettered in order to designate their company, platoon, and vehicle number as appropriate. Embarked unit designations and/or color beach destinations may be marked on the vehicle after leaving the port of embarkation, as required. Embarked units normally are identified by chalking on the appropriate unit designation. Colored beach destinations may be indicated by use of vertical stripes, corresponding in color and number to the beach on which the vehicle is to land.

b. Boat Paddles. Waves of landing craft or amphibious vehicles are identified by boat paddles with painted numerals indicating the number of the wave and the position of each boat or vehicle within the wave. Boat paddles are constructed by embarked units. Boat team commanders insure that paddles are displayed until the line of departure is crossed. Boat paddle design and dimensions are illustrated in figure 7–4.

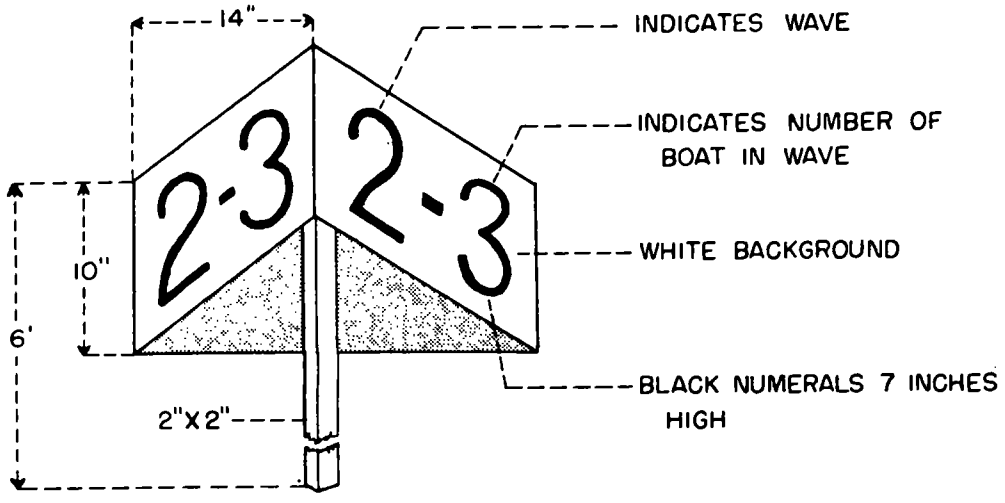
7–17. Debarkation of LVT's

Techniques for debarkation of all LVT's from landing ships are identical.

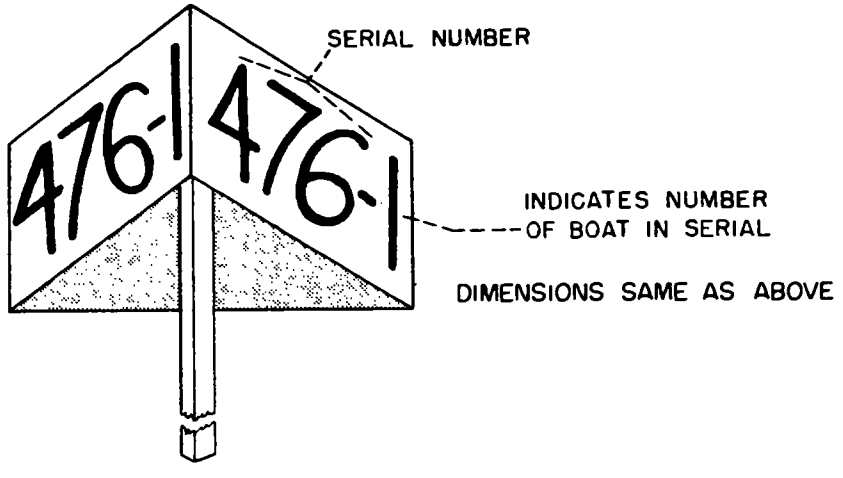
a. Debarkation Time Schedules. The time for launching amphibious vehicles is determined by the naval control group in conjunction with representatives of the engineer amphibian assault units. Allowances are made for forming waves, timely crossing of the line of departure, and coordinated movement to the beach. An average waterborne speed of 4.5 knots normally is used for amphibious vehicles. Troop commanders aboard each ship insure the vehicles are loaded in accordance with amphibious vehicle assignment tables, in order that debarkation schedules may be met. The preparation of these tables is discussed in FM 31–12.

b. Preparation for Debarkation. The command to MAN VEHICLES is given over the ship's loudspeaker system. Boat teams with their equipment embark in assigned vehicles. Each boat team commander then insures that personal equipment is worn so that it can be jettisoned quickly in the event of an emergency. See appendix F for a discussion of safety precautions for personnel embarked in amphibious vehicles during training operations.

c. Launching Amphibious Vehicles. Prior to launching, all ports and hatches of amphibious ve-



BOAT PADDLE USED BY BOAT TEAMS IN SCHEDULED WAVES



BOAT PADDLE USED BY BOAT TEAMS IN ON-CALL AND NON SCHEDULED WAVES

Figure 7–4. Examples of boat paddles.

hicles are closed. On signal from the ship's officer at the head of the ramp, vehicles are driven forward in low gear. Designated personnel guide each vehicle onto the ramp by use of arm and hand signals. As each vehicle starts down the ramp another is driven forward, ready to follow. Vehicles descend slowly, and, when waterborne, quickly clear the ramp area and take position in the prescribed wave.

7–18. Conduct of Transfer Operations

Ships utilized to transport amphibious vehicles to the objective area often cannot accommodate the personnel to be embarked in amphibious vehicles for movement from ship-to-shore. Generally, amphibious vehicles are not considered suited to embarking personnel directly from typical troop-carrying ships such as the attack transport ship

(APA) because of the distance at which they anchor from the shore and the poor maneuverability of tracked amphibious vehicles. In addition to these considerations, amphibious vehicles cannot be practically employed in these lengthy trips from ship-to-shore due to slow speed and extensive maintenance requirements. Landing craft, although more maneuverable and faster, are limited when a requirement exists for crossing reefs, sandbars, and offshore obstacles in order to reach the beach, or to continue across the beach. As a result of these considerations, and to fully exploit the capabilities of landing means available to the force, transfer of troops and their equipment from APA's to landing ships prior to launching amphibious vehicles is often conducted. In some instances, transfer operations from landing craft to launched amphibious vehicles are conducted. Both prior and subsequent methods of transfer are discussed below. See figure 7–5 for an illustration of a transfer from landing craft to amphibious vehicles.

a. Transfer Prior to Debarkation of Amphibious Vehicles. The transfer of troops from transport ships to landing ships carrying amphibious vehicles can be accomplished either by means of helicopter or landing craft. Transfer prior to debarkation of amphibious vehicles is the simplest, least hazardous, and most desirable method of executing transfer.

b. Transfer Subsequent to Debarkation of Amphibious Vehicles. If transfer of troops is not completed before the launching of amphibious vehicles from landing ships, either a transfer at sea directly from landing craft to amphibious vehicles or embarkation of troops directly from transport ships to amphibious vehicles is necessary.

(1) *Transfer from transport ship to amphibious vehicles.* The transfer of troops directly from transport ships to amphibious vehicles is utilized only if no other course of action is available.

(2) *Transfer from landing craft to amphibious vehicle.* When this method of transfer is utilized, a transfer area (line) is established seaward of the limits of safe navigation for landing craft and out of the range of enemy small arms fire as shown in figure 7–5. In this area, troops and cargo are transferred from landing craft to amphibious vehicles for the trip to the beach. The additional time required for completion of transfer operations is compensated for by the ability of the amphibious vehicles to negotiate the beach and proceed inland. Beach congestion is reduced materially when amphibious vehicles are utilized for the landing of troops.

(*a*) *Control within the transfer area.* The naval control organization is responsible for the conduct of transfer operations. The control ship for the beach concerned takes station near the transfer area as soon as transfer operations begin. The engineer amphibian assault units, as well as the lifted troop units, are represented in the control group by liaison personnel. See paragraph 7–13. Wave guide control craft maintain station along amphibious vehicle routes helping drivers maintain course, assisting in the rescue of personnel from disabled vehicles, and assisting in traffic control.

(*b*) *Conduct of transfer operations.* The transfer operation is conducted as follows:

1. All amphibious vehicles report to a designated amphibious vehicle pool officer.
2. As a boat wave approaches the transfer area, the control officer requests the amphibious vehicle pool officer to dispatch the required number of amphibious vehicles to the transfer area.
3. Vehicles approach the transfer area in a column parallel to a designated line. When properly spaced in a column, they turn to seaward, and lie-to in a direction likely to cause the least motion. Amphibious vehicles do not maneuver during the approach of landing craft.
4. Landing craft waves approach the transfer area in line abreast. Each craft "marries" to the lee side of the designated amphibious vehicle, bow to stern.
5. Fenders are then placed between vehicle and craft, and the two are lashed together. Necessary maneuvers are

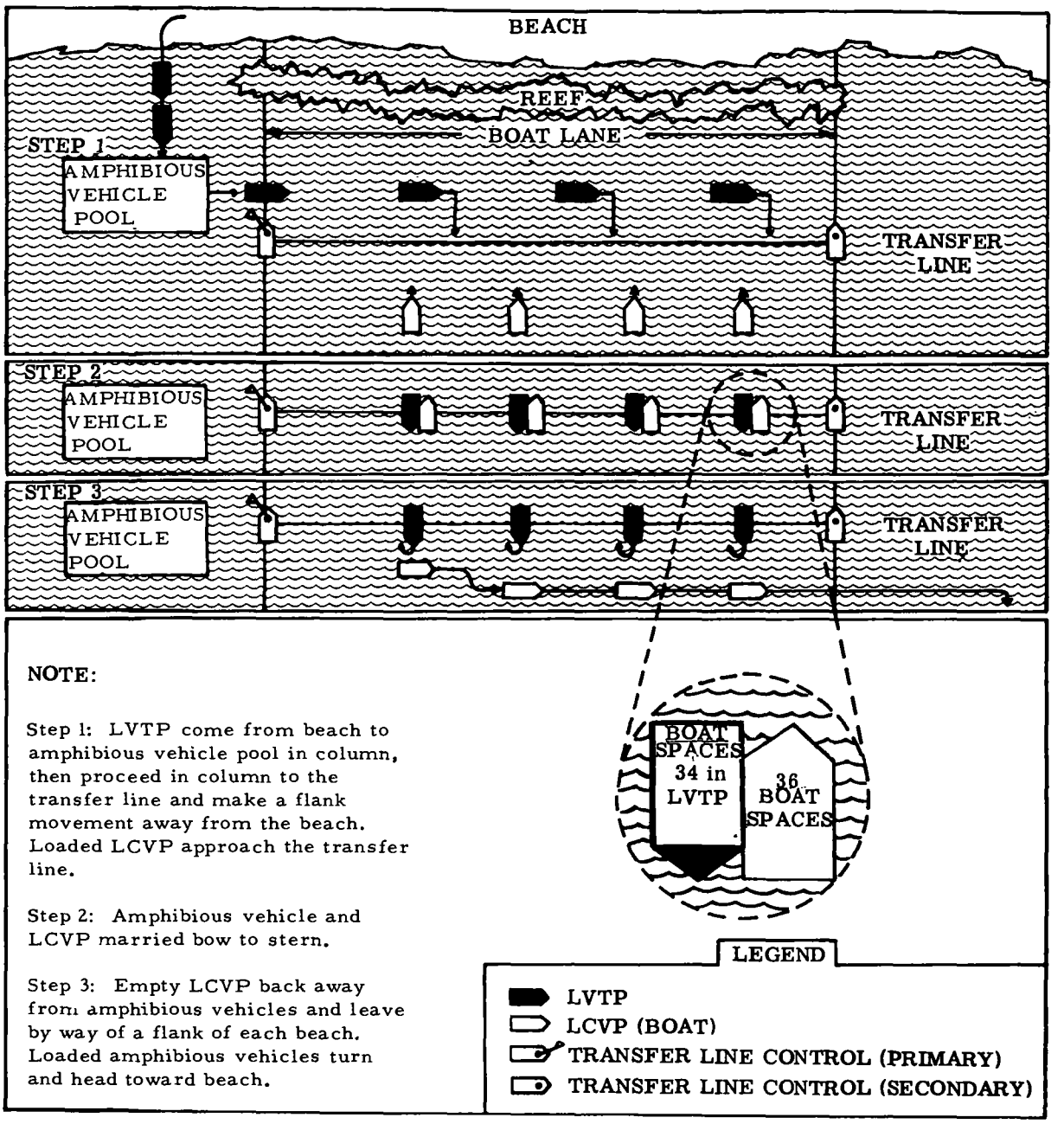


Figure 7–5. Schematic diagram of transfer operations.

powered by the landing craft. Amphibious vehicle tracks are disengaged.

6. Troops step from the gunwales of the landing craft to the deck of the amphibious vehicle and descend by boarding ladder into the cargo and personnel compartment of the vehicle.
7. Equipment is passed from the landing craft to personnel who have already transferred.
8. Cargo loads are transferred by personnel stationed in the transfer area for this purpose. Roller conveyors between craft and vehicle may be used for this

purpose. During later stages, barges and floating cranes are used to speed cargo transfer operations.

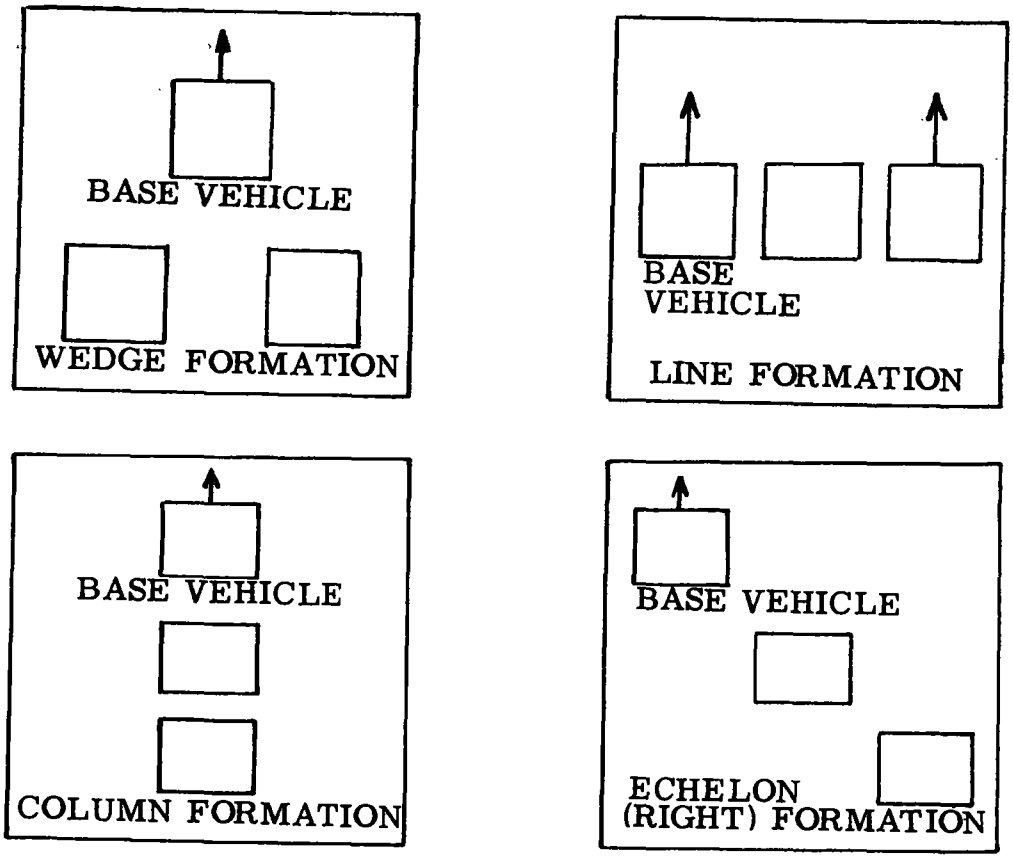
9. Landing craft are loaded so as to facilitate transfer of embarked personnel. A landing craft may carry several normal loads for amphibious vehicles. Loads for more than one destination are avoided.
10. Once transfer is accomplished, landing craft proceed via the nearest flank of the appropriate boat lane to designated ships or control points for further employment. Amphibious vehicles proceed as directed by the transfer area control officer or wave guide.

7–19. Formation of Waves

After debarkation, amphibious vehicles form in designated waves under control of their respective guide boats. The optimum interval between vehicles for ease of control is three vehicle lengths. Other factors influencing interval between vehicles are the formation and interval required upon reaching the beach, sea conditions, and visibility. When formed in column, each wave follows its guide boat toward the line of departure and, by turning, forms a line seaward and parallel to the line of departure. Figure 7–6 illustrates the various formations used by engineer amphibian assault units.

7–20. Maneuver at the Line of Departure

Waves arriving at the line of departure are directed by the primary control officer (see figs. 7–1 and 7–2). Waves arriving prior to scheduled crossing time maneuver to maintain wave integrity. Vehicles maneuver by a series of flanking movements, protecting against wave inversion and excessive wear on steering mechanisms. Maneuvers are conducted at slow speed, while wave guides



NOTE: Interval for all formations is adjusted on the base vehicle.

Figure 7–6. Illustration of amphibious vehicle formations.

watch for signals from the control ship in order to insure timely crossing of the line of departure.

7–21. Crossing the Line of Departure

The primary control officer orders waves across the line of departure by use of a flag hoist and supplemental voice radio. Five minutes before the first wave is to cross, the control ship hoists a "numeral one" flag at the dip (half-mast). The first wave then moves into position immediately seaward of the line of departure. Two minutes before crossing, the flag is hauled to the "close-up" position (all the way up), and vehicles move toward the line of departure. When the flag is hauled down, the wave crosses the line of departure and proceeds to the designated beach. For all succeeding waves, only the 2-minute warning and the execute signals described above are given, using the numeral flag corresponding to the wave number being dispatched. For an illustration of the numeral flags, see appendix Q.

7–22. Movement to the Beach

En route to the beach, landing craft designated as guide boats take position at the flanks or to the front and rear of assigned waves, as appropriate. Boats guiding LVTE's always take station to the flanks of the wave. The wave commander maintains interval between vehicles within the wave and adjusts speed to that of the wave guide. The last 1,000 yards to the beach are covered at the fastest speed commensurate with combat efficiency. Boat paddles are lowered and all vehicle hatches closed as protection against enemy action and shell burst. Just prior to entering the surf zone, guide boats leave the wave and relinquish control. Amphibious vehicles then continue to the beach under control of wave commanders. After beaching, amphibious vehicle waves continue inland in accordance with predetermined plans or return to seaward after discharging troops or cargo. Vehicles returning seaward will enter the water from the flanks of the beach to avoid interference with subsequent waves.

7–23. Underwater and Beach Obstacles and Mines

a. Underwater Obstacles. Underwater obstacles are extremely effective against all types of amphibious vehicles and must be cleared by navy units before landing operations commence. If only narrow passages are cleared, amphibious vehicle formations are adjusted so the cleared channel is traversed by all vehicles. Landing and retraction by subsequent waves is coordinated at each cleared passage to prevent congestion until additional passages are cleared. The landing rate is slowed to allow for decreased speed in reaching the beach and unloading.

b. Beach Obstacles and Mines. Manmade or natural obstacles and mines encountered inland of the high water mark can restrict amphibious vehicle movement. Obstacles contaminated by employing chemical landmines will make troop passage more difficult because troops will be required to mask. Beach minefields are neutralized before landing scheduled waves by LVTE vehicles of the mine clearance platoon, headquarters and headquarters company, engineer amphibious battalion, which land in the first wave. When antitank minefields cannot be breached, assault troops debark from amphibious vehicles just seaward of the beach mines.

c. Eliminating Obstacles. Instructions regarding elimination of underwater and beach obstacles and mines are contained in FM 5–15 and FM 20–32.

7–24. The LVTP5 as a Mobile and Floating Dump

a. Floating Dumps. One or more LVTP5's may be employed as floating dumps during the movement from ship-to-shore. These vehicles are intended to provide commanders of assault units with an early emergency means of supply available in the same manner as on-call serials. LVTP5's designated as floating dumps normally remain in landing ships near the line of departure until requested by the supported unit, at which time they are launched. Careful planning is required to insure that floating dumps are embarked on ships not scheduled for diversion to other activities, i.e., causeway launching, beaching, etc., thereby removing them from vicinity of the line of departure. When sufficient supplies have been landed, all remaining loaded floating dumps are unloaded ashore and these vehicles can then be made available for other assignments.

b. Mobile Dumps. LVTP5's may be employed in support of a mobile force ashore, normally a bat-

talion landing team, as mobile dumps. These vehicles are loaded as directed by the supported unit commander. Their loads may include personnel, crew-served weapons, ammunition, and rations. Vehicles designated as mobile dumps accompany the supported force, providing a ready, immediate source of support during the stipulated period of employment.

c. Logistic Capacities. See appendix B for an illustration of LVTP5 cargo capacities and typical cargo loads while waterborne and during land combat operations.

Section III. OPERATIONS ASHORE DURING UNLOADING

7–25. General

The dual nature of the LVT provides the landing force with a flexible, diversified vehicle throughout the course of the amphibious operation. When the transportation of personnel of the assault elements of the landing force from ship-to-shore and inland is completed, the LVTP5 may be employed in a combat service support role to carry supplies and equipment. Normally, when released by the tactical commander, the engineer amphibian assault companies revert to the control of their parent unit, the engineer amphibious battalion. As the commander of this battalion is a shore party commander, the LVTP5's may be used in the support of shore party operations.

7–26. Liaison

a. When their employment with the shore party is anticipated, liaison personnel of the engineer amphibian assault companies land with shore party headquarters elements. These liaison personnel assist in planning for initial LVTP5 employment in the combat service support role and keep the engineer amphibian assault company commander advised. Integrity of company-sized units is maintained whenever possible.

b. Engineer amphibian assault companies directed to conduct unloading operations with a ship, send a liaison party with communication equipment aboard the ship prior to commencing operations. The duties of the liaison party include—

(1) Advising the ship's combat cargo or unloading officer on matters of LVTP5 employment.

(2) Advising and assisting in handling of LVTP5's at the ship.

(3) Informing beach LVT control point personnel and command posts of the engineer amphibian assault companies of details regarding unloading.

7–27. Establishment of Facilities Ashore

The company command post for each engineer amphibian assault company, with its maintenance and supply facilities for its organic LVT's ashore, is located proximate to the supported unit whenever possible. Extensive areas are required to provide for proper dispersion of vehicles and conduct of maintenance. Therefore, detailed reconnaissance of proposed sites is necessary to insure availability of an adequate installation. The commander of the area in which the installation is to be located approves the proposed locations of these engineer amphibian assault units.

7–28. Control of Operations Ashore

LVT's operating ashore rely on radio as their primary means of control. Secondary means include visual and sound amplification systems. Visual inshore markers control movement of vehicles on the beach. Guides are employed where required. These control measures are initiated and supervised by the shore party. Small boat signals may be employed ashore as well as afloat. Common hydrographic markings, beach markers, unloading point markings, and other beach signals are illustrated in appendix Q. Specific control points are established on the beach where LVT's enter and leave the water while based ashore. It is desirable that these points be within view of the ships being unloaded by the LVT's. Control personnel, with communication equipment, are stationed at each such checkpoint to dispatch vehicles. The duties of these control personnel include—

a. Establishing and maintaining liaison with the shore party.

b. Directing LVT's to the proper ship or destination.

c. Maintaining records of vehicle movement and amounts of cargo hauled.

d. Maintaining required communications.

e. Advising the shore party with regard to operating conditions affecting LVT employment; e.g., wind, surf conditions, and currents.

7–29. Unloading Ships

a. LVTP5's possess a capability to unload ships and have the following advantages over landing craft in accomplishing this mission:

(1) Trips from ship-to-shore are not interrupted by reefs or other offshore obstacles.

(2) Retraction problems caused by tidal conditions are avoided.

(3) Cargo can be lifted by one carrier from the ship inland to dumps, supply points, and to tactical units.

(4) Unloading of ramp-type ships in shallow water is facilitated.

b. Disadvantages of employing LVTP5's to unload ships include—

(1) LVTP5's are slower than landing craft.

(2) They require more maintenance.

(3) They are less maneuverable afloat.

(4) There is more restriction on the size of cargo due to the configuration of the vehicle.

(5) Ships being unloaded must be close inshore.

7–30. Unloading Landing Ships Not Beached

A landing ship may be unloaded advantageously by LVTP5's if it lies close inshore. Loading may be accomplished alongside the ship by means of nets and cranes or by embarking LVTP5's over the ramp of the LST or sill of the LPD/LSD and loading them while onboard.

7–31. Cargo Transfer Line

See paragraph 6–36 for a discussion of a cargo transfer line.

Section IV. EMPLOYMENT OF THE MINE CLEARANCE PLATOON

7–32. General

The mine clearance platoon, headquarters and headquarters company, engineer amphibious battalion, includes the LVTE vehicles and mine clearance personnel organic to the battalion. Personnel augmentation from the engineer battalion (army), attached to the shore party, is required during training and actual operations to aid organic personnel in the employment of the vehicle. The LVTE is a modified armored LVTP5 and is equipped with a rocket propelled line charge, a hoist mechanism with its carrying rack for the charge, and a plow-shaped mine excavator with flotation tanks. Appendix D illustrates the LVTE and lists its characteristics. This vehicle provides a greatly increased capability in the breaching of extensively mined areas and in the reduction of obstacles during the landing and subsequent operations ashore.

7–33. Mission of the Mine Clearance Platoon

The mine clearance platoon, headquarters and headquarters company, engineer amphibious battalion, is assigned the following missions:

a. To land from assault shipping during amphibious operations (normally in the first wave) and clear lanes through minefields from the high water line inland, for personnel and vehicles of the landing force.

b. To reduce and breach obstacles blocking the movement of the landing force from the high water line inland.

c. To perform demolition tasks as assigned in the reduction of obstacles, minefields, including mixed fields with chemical mines and flame expedients, and enemy positions within its capabilities.

d. To perform CBR decontamination within its capability, as required.

7–34. Platoon Organization

The mine clearance platoon is organized as follows:

a. Platoon. The mine clearance platoon is organic to the headquarters and headquarters company of each engineer amphibious battalion. The platoon consists of 1 officer and 30 enlisted personnel and is equipped with 10 LVTE's.

b. Sections. The platoon is organized into three sections, each of which is equipped with three vehicles. The section is commanded by an NCO section leader, who also commands his assigned LVTE.

c. Crew. Each vehicle is manned by a crew of three which is augmented by engineer personnel (normally from the engineer battalion (army) attached to the shore party) as shown below for training and combat operations:

Grade	*MOS*	*TOE*	*Title*	*Asgd*	*Aug*
Sergeant	12B40	LVTE	Commander	1	1
Corporal	12B20	LVTE	Driver	1	1
Private	12B20	LVTE	Gunner	1	1

7–35. Command Relationships

The platoon leader, assisted by his platoon sergeant, performs command duties to include operational, logistic, and administrative duties necessary for the planning, direction, and supervision of assigned missions. Each LVTE is commanded by an LVTE commander. During the actual employment of the vehicle in its engineer function, the LVTE commander is responsible for firing the line charge and the subsequent clearing operations of the assigned and attached engineer crewmen.

7–36. Communications

The platoon is capable of effecting rapid and reliable communications between platoon headquarters and subordinate, supported, and higher headquarters. The primary means of communications is voice radio. Alternate means include the use of messengers and visual signals. Each LVTE is equipped with the radio set AN/VRC–53. In addition, a portable radio set can be mounted in the vehicle. The AN/VRC–53 radio set enables the platoon leader to simultaneously operate a platoon command net and maintain communications with supported units.

7–37. Maintenance

The platoon is capable of user organizational maintenance on all organic equipment. The engineer amphibious battalion provides backup organizational maintenance support for the platoon. Maintenance support for LVTE units may also be provided by direct support maintenance units of the field army support command. The supply of adequate quantities of repair parts requires thorough planning and preparation, as many of the parts involved are peculiar to the LVTE vehicle and not compatible with the LVTP5. Additionally, the resupply of the line charges used by the LVTE requires thorough and continued planning by the supply section of the engineer amphibious battalion. See appendix I for maintenance details.

7–38. Vehicular Characteristics of the LVTE

a. General. The LVTE is equipped with a carrying rack, a hoist, a firing mechanism designed to fire a rocket-propelled line charge, and a bow-mounted, plow-shaped mine excavator blade. The hull design is that of the LVTP5; however, the engine, suspension system, and other components are significantly different.

b. Special Equipment. Special equipment organic to the LVTE consists of the following:

(1) *Line charges.* Two rocket-propelled line charges each filled with 1,750 pounds of plastic explosive are carried by the LVTE. When the line charger is launched, the total length of the explosive portion of each charge is 350 feet. The charge is propelled by a rocket motor and can be fired by the crew from the interior of the vehicle (fig. 7–7). It should be noted that this line charge may be fired from the ground as well as from the vehicle.

(*a*) The line charge is carried in a steel pallet which serves as a storage and transporting container (fig. 7–8). It is covered with a steel and plywood cover; however, it is not completely waterproof. The pallet when loaded has the following characteristics:

Length .....93 inches
Width .....53 inches
Height .....24 inches
Weight .....3,100 pounds

(*b*) A practice line charge can be issued for use in training LVTE crews. It is fired in the normal manner using all components of the standard line charge except that the demolition charge is inert.

(2) *Mine excavator.* Each vehicle is equipped with a plow-shaped mine excavator blade with flotation tanks to give the assembly buoyancy while the vehicle is afloat (fig.

7–9). The blade excavates mines with sophisticated fuzes that were not detonated by the overpressure created by the line charge. The excavator blade can be equipped with explosive bolts to detach it from the vehicle in the event it becomes damaged or interferes with other operations. Due to high cost, explosive bolts are not issued for training but are available for combat.

(3) *Troop and stowage space.* Space is provided in the vehicle for the augmentation of combat engineers and their demolition equipment.

7–39. Vehicular Capabilities

As a result of its capability to project a line charge, the LVTE can commence mine clearing while still waterborne (fig. 7–10). With its load of two line charges, each vehicle is capable of clearing a path about 600 feet in length under ideal conditions. The lay of the flexible charge and the accuracy of the shot itself will determine the precise usable length of the mine-free path. The cleared lane normally will be at least 90 percent of the line charge length. Generally, antitank mines with simple pressure fuzing are cleared to a minimum of the width of the LVTE, permitting the vehicle to employ the excavator blade in bulldozing a path. The resulting cleared lane will accommodate all combat vehicles currently employed by the U.S. Army. The vehicle has a limited capability for breaching mined water barriers, such as rivers or streams, by use of overpressure on submerged mines. The explosive effect will also tend to clear some light antimechanized and antipersonnel obstacles.

7–40. Vehicular Limitations

The more permanent type obstacles situated in extensively fortified areas are often beyond the destruction capability of the LVTE. Examples of obstacles of this nature are tetrahedrons, dragon's teeth, and roadblocks constructed to defeat the effect of the line charge. In addition, the LVTE is vulnerable to air attack, antitank fire and to large caliber weapons normally covering minefields. Smoke screens, gunfire support, or air cover are required when the vehicle is exposed to such fire.

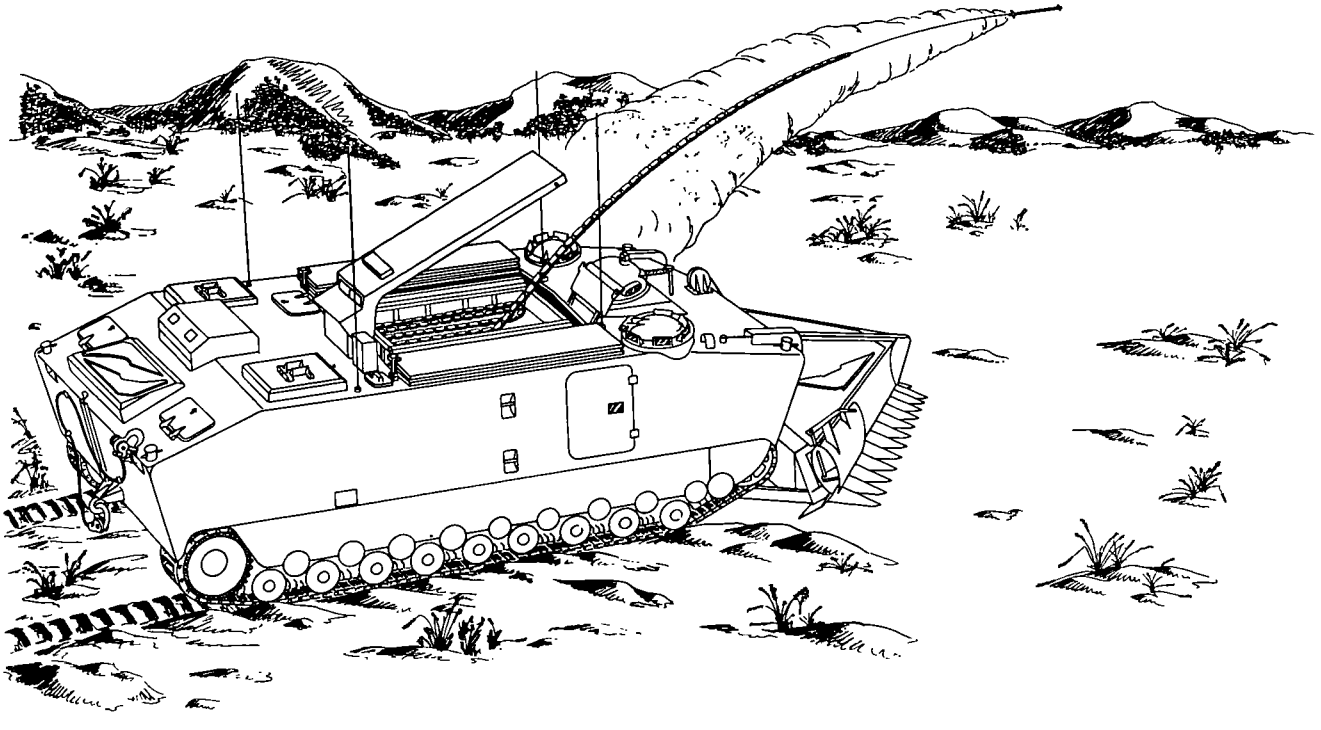


Figure 7–7. LVTE rocket-propelled line charge fired from interior of the vehicle.

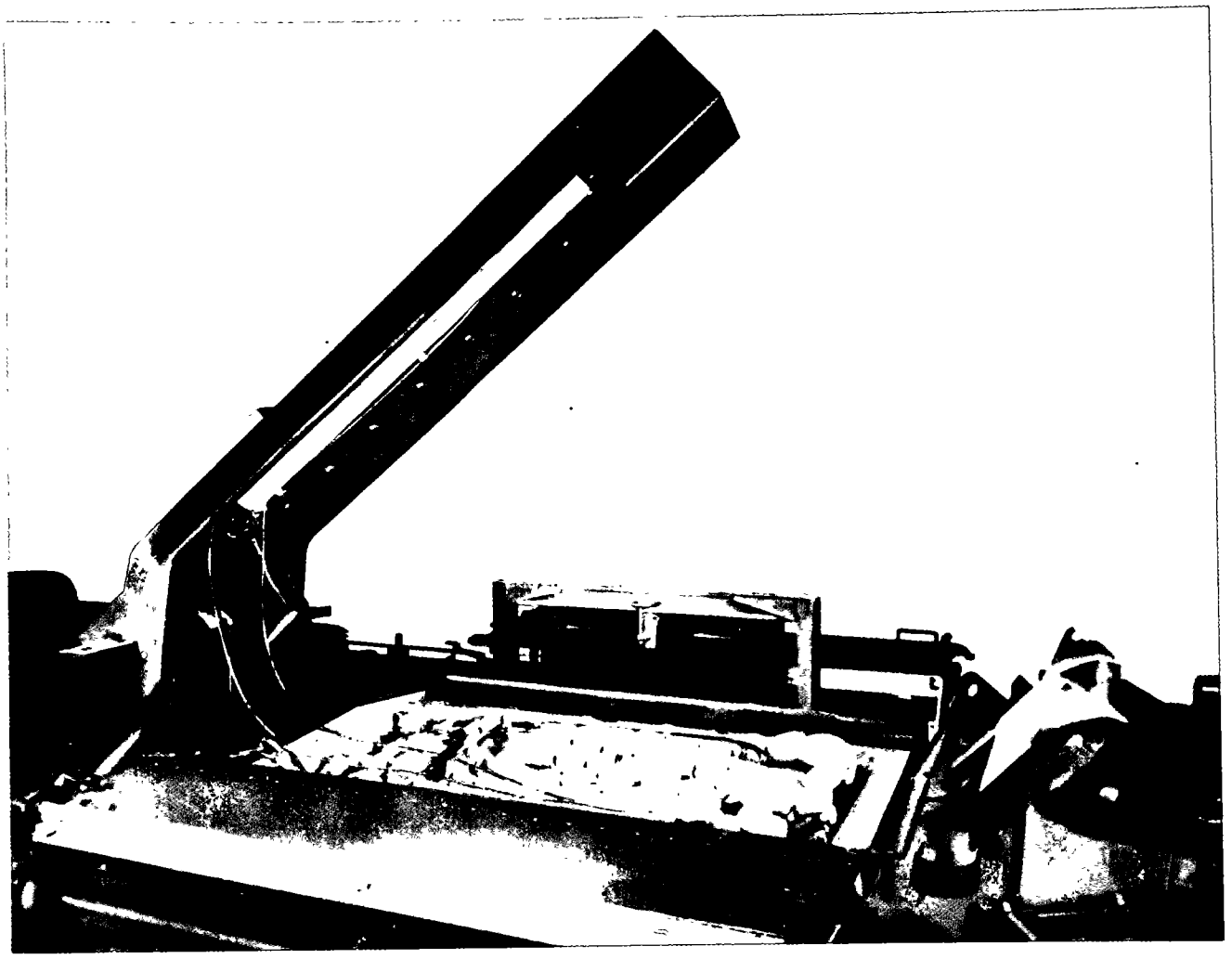


Figure 7–8. LVTE steel pallet, line charge, and rocket.

7–41. Planning and Preparation for Employment

a. Planning. Normal staff planning by the engineer amphibious battalion and coordination with supported units are required when the LVTE's are to be employed. The engineer officer at the supported echelon normally coordinates and plans for the employment of the LVTE. Principal planning considerations include—

(1) Training.
(2) Missions.
(3) Organization for embarkation and landing.
(4) Ship-to-shore movement.
(5) Operations ashore.
(6) Supply and maintenance.
(7) Communications.

b. Training. The platoon leader is responsible for training the LVTE crewmen in all aspects of the basic vehicle and its associated operations. The commander of the engineer battalion (army) attached to the shore party is responsible for the training of combat engineers who augment the crew of the LVTE during training and operations. Cross training of individuals is desirable and will assist the unit to accomplish its assigned mission. Combined training of LVTE crews and attached engineers is also necessary in order to develop an effective team that is capable of performing all required tasks.

c. Intelligence. In addition to the intelligence information required by LVT units, the mine clear-

ance platoon requires information which includes the extent and location of minefields and the type of mines or obstacles expected to be emplaced in the objective area.

d. Liaison. Commanders of organizations to receive LVTE support should include mine clearance platoon liaison personnel in initial planning conferences.

7–42. Organization for Combat

The platoon, or sections thereof, normally is attached to or placed in support of an assault unit. The platoon normally supports a brigade landing on a colored beach. The decision as to the organization depends upon the operational and combat service support considerations. It is desirable to place the platoon in support of infantry units when the parent engineer amphibious battalion is employed in the same area and can provide combat service support. Attachment is desirable when the engineer amphibious battalion is unable to support the platoon due to distance or other foreseeable factors. When attached, the platoon requires combat service support assistance from the unit to which attached. This assistance consists of maintenance augmentation and the provision of supplies to include fuel, ammunition (including resupply of line charges), and repair parts.

7–43. Ship-to-Shore Movement of LVTE's

a. Control Procedures. The principles, techniques, and control procedures involved in the ship-to-shore movement are the same as for other LVT type vehicles. Normally, LVTE's are employed in assault waves where beaches are known to be or suspected of being mined, or when obstacles have been emplaced.

b. Pallet Loading. Prior to launching LVTE's, the pallets are loaded into the vehicle, unless already embarked. The rocket motors and fuzes are also loaded at this time. *Neither the rocket motors nor the fuzes are connected to the line charge until just prior to the time the vehicles are launched.*

c. Formations and Breaching Tactics. Normally, the mine clearance platoon, or elements thereof, are included in the first wave of the assault. The lower water speed of the LVTE (6.2 mph as against 6.8 mph for the LVTP), is considered when LVTE's are included in the assault waves. LVTE's normally proceed from the line of departure to just short of the surf zone in a line formation. At this point vehicles will shift to the column formation.

Figure 7–9. LVTE employing plow-shaped mine excavator blade.

Figure 7–10 Explosion of line charge fired from waterborne LVTE

two vehicles to a column (fig. 7–6). The lead LVTE fires its first line charge while waterborne. It then moves ashore into the cleared lane using the excavator blade to insure clearance of undestroyed mines or other obstacles. It then fires its second charge and withdraws. When required, it is succeeded by the second LVTE which passes the first vehicle and moves forward, excavating as required and in turn, firing its line charges. Normally a section (two or three LVTE's) operates as a team. If the minefield is extensive in depth it may be necessary to employ two sections.

d. Timing of Waves. The time of landing the first wave in relation to the second and succeeding waves may depend on the extent of mine clearance to be effected on the beach. Sufficient time is provided to allow the mine clearance unit to complete its task. Succeeding waves should not be halted awaiting mine clearance operations.

e. Support. Breaching operations on the beach are normally supported by air, naval gunfire, or screening smoke, as appropriate.

7–44. Operations Ashore

a. Breaching Minefields. The overpressure of the projected line charge will clear a path through conventional pressure fuzed mines. Missiles resulting from the blast often eliminate tripwired mines, barbed wire, and other obstacles. The excavator blade enables the LVTE to bulldoze the path created by the line charge. This reduces the risk of undetonated mines and eliminates rubble which could act as an obstacle to vehicles and troops. Techniques for these mine clearing operations differ depending on whether or not the minefield is defended.

(1) *Undefended minefields.* Against undefended minefields the procedure parallels that described in paragraph 7–43 above. Vehicles are employed in sections, each launching its two charges, excavating, and retiring in accordance with a predetermined plan.

(2) *Defended minefields.* Against defended minefields, protection is furnished the

LVTE by employing smoke for concealment and other fires to neutralize hostile enemy installations. Natural cover and camouflage are exploited wherever possible. LVTE's approach the fields from covered positions and under conditions of darkness or limited visibility. Smoke concentrations can be used to indicate the far limits of the field, thereby providing a visible reference point and reducing the vehicle exposure time to fire. Small arms fire and supporting weapons are directed on hostile emplacements and troops during LVTE minefield breaching operations.

(3) *Safety.* The danger area for unprotected troops extends 100 feet to the rear of an LVTE firing a line charge. The flanks of the blast area are also extremely dangerous. The area within 500 feet on each side of the charge is unsafe, and even at 500 feet friendly troops should remain under cover.

(4) *Excavating.* A safe lane is insured when the blade of the LVTE excavates to a depth of five inches. Some soils cannot be excavated to this depth. In such cases, either the effects of the line charge are deemed sufficient, or mine detectors are employed to check the lanes for mines not detonated.

b. Destroying Obstacles. The principal advantage of employing the LVTE in this role is its ability to destroy or neutralize the interfering obstacles from a distance. An additional advantage is the effect of overpressure on defending troops. Mines and boobytraps in the area may also be destroyed by the effects of overpressures. The rapidity with which the vehicle may be employed constitutes an advantage and provides increased effectiveness. The blast from the line charge is very effective against obstacles constructed of wire, light timber, or light steel. Obstacles constructed of heavy steel and concrete will not be cleared by the line charge.

c. Defensive Employment. The LVTE unit possesses a limited potential in a defensive role. During retrograde movements and holding actions, the vehicles may be employed to create obstacles, utilizing the excavator blade and the line charge. Line charges may be employed to create landslides, blow bridges, or destroy roads. The excavator blade may be used for minor excavations under these conditions. However, the blade was not designed for heavy duty dozing and continued and prolonged use of the excavator blade as a bulldozer, will result in excessive wear and damage to the aluminum excavator teeth.

7–45. Supply of Line Charges

The supply of line charges for use by LVTE vehicles is carefully planned. When LVTE's are embarked in LPD's, their line charges are loaded aboard just prior to debarkation. Vehicles aboard LST and LSD are embarked with two line charges already emplaced. Rocket motors and fuzes are stored in the ship's magazine and loaded into the vehicle just prior to launching LVTE's. Line charge resupply is accomplished through the use of landing craft or helicopter. A crane, wrecker, or LVTR is required to reload the LVTE line charge racks.

Section V. COMMUNICATIONS FOR LVT's

7–46. General

a. As stated previously in the discussion of shore party communications, in the initial phases of an amphibious operation, great reliance must be placed on radio, since much of the communications is over open expanses of water. This is particularly true in the case of the engineer amphibian assault companies and the mine clearance platoon, engineer amphibious battalion, in controlling and employing their vehicles. Restricted vision and excessive noise from within the vehicle render other communication methods undependable when the vehicles are "buttoned up." The headquarters and headquarters company, engineer amphibious battalion also furnishes mobile command posts, fire support coordination centers and observation posts through employment of the LVTPC with its extensive radio communication potential. Each engineer amphibious battalion conducts continuous training for the LVT's in the use of voice radio equipment and

radio procedure for purpose of internal control with great emphasis on net discipline. A description of the radio sets and equipment organic to, and used by the engineer amphibious battalion, including ranges and frequencies may be found in appendix N.

b. In addition to radio communications, visual signals are also used when possible and desirable. These include flags, boat paddles, lights, pyrotechnics, panels, and arm and hand signals. The use of visual signals is restricted by poor visibility, when line-of-sight locations are not available, and when prohibited for security reasons. The engineer amphibious battalion and its organic engineer amphibian assault companies are also equipped with wire communications for use ashore. For details on flags, light and markers used in the control of amphibian vehicles, see appendix Q.

7–47. Communications Personnel

The majority of the communications personnel found in the engineer amphibious battalion are located in the engineer amphibious company (shore party company). These personnel are available to the engineer amphibian assault companies for assistance and guidance in the training, operation, and maintenance of the radios organic to the LVT's. The radios in the LVT's are manned by the assistant driver who is also responsible for the maintenance prescribed for the user.

7–48. Internal Radio Communications

Sufficient nets are activated within the engineer amphibious battalion to provide for positive control of the two engineer amphibian assault companies.

a. Battalion Command Net. The battalion command net is used by the commander of the engineer amphibious battalion and his staff to control the amphibian assault companies. The battalion command net is entered by the battalion command post including the control vehicles (LVTC's), company command posts, and the mine clearance platoon (LVTE's).

b. Company Command Net. This net is used by each engineer amphibian assault company commander as his means of controlling the movement of his unit. This net normally is entered by the company command post, all vehicles within the company, and the recovery vehicle (LVTR) organic to the company.

c. Platoon Command Net. When sufficient frequencies are available, or the tactical situation requires, equipment platoon (LVTP5 platoon) command nets are activated and entered by all vehicles within the platoon.

7–49. Communications With Supported Units

a. The amphibious engineer battalion, or elements thereof, while supporting a unit of the landing force, enters the nets they are directed to enter by the supported unit commander and/or a common superior headquarters. These nets are utilized for command, tactical, and logistical purposes. All supported units customarily activate command and control nets. Activation of a logistical net depends on the needs and mission of the units. Engineer amphibian assault companies possess an FM capability in all vehicles. The LVTPC's of the headquarters and headquarters company, engineer amphibious battalion have both an AM and FM capability. The battalion as a whole, therefore, has an unusually broad capability for communications with supported units. Communication plans normally are prepared to exploit this wide capability.

b. Engineer amphibious units operating in an internal defense environment, in support of receiving state or third country armed forces, or receiving state paramilitary and/or civilian agencies and organizations may be required to parallel and/or operate in the supported unit's AM/FM command and administrative radio nets for physical security as well as for command and control purposes. When the communications requirement exceeds the unit or parent unit capability, assistance will be sought first from the supported organization's parent headquarters.

7–50 Communications for Embarked Units

Tactical unit commanders utilize the communications facilities of the six LVTPC's organic to each engineer amphibious battalion. When required and when available, embarked tactical units may also utilize the communications facilities of the LVTP5's.

CHAPTER 8

SPECIAL OPERATIONS

Section I. SPECIAL LANDING OPERATIONS

8–1. General

The special landing operations discussed in this section are applicable to all tracked vehicles of the LVT family. The principles governing landing under the cover of darkness or in arctic or cold weather regions are the same as those principles outlined for the amphibious assault discussed in the previous chapter. However, certain modifications in technique are required, including added emphasis on planning and special training of participants.

8–2. Night Landing Operations

The techniques for launching and landing amphibious vehicles previously discussed remain valid for landing operations conducted at night. The following areas require special consideration whenever night landings are planned and conducted:

a. Briefing. All personnel of the engineer amphibious assault units are thoroughly briefed on the unit's mission, signals to be employed, formations to be used, hydrographic data, location of enemy beach installations, and terrain features ashore. Details with regard to underwater barriers, retraction from the beach, rendezvous areas, and secondary missions are emphasized.

b. Time Schedules. Schedules for formation of waves, crossing the line of departure, and any other multiple vehicle activity requiring close control are drafted, rehearsed, and adhered to strictly. When tactically feasible, the scheduling of the landing just prior to daybreak facilitates recovery of disabled vehicles.

c. Signal Communications. Lights constitute the most dependable system of signal communications at night. Light signals adopted are as few in number and as simple as the situation permits. Other signals may be prescribed by the landing force and/or amphibious task force commander.

d. Formations. The simplest formation to form and control is utilized during night operations. Column or close wedge formations discussed previously best meet this criteria. Crossing the line of departure is best accomplished by keeping vehicles in column and then forming a close wedge just prior to landing.

e. Individual Initiative. Emphasis is placed on use of increased initiative by individual crews. Such initiative is required due to the inability of any of the command and control personnel to influence the course of events aboard an individual vehicle.

f. Safety Precautions. Appendix F describes safety precautions during night operations.

8–3. Arctic or Cold Weather Landing Operations

Engineer amphibian assault units operating in arctic or other cold weather areas must cope with increased problems of maintenance and difficult operating conditions. The various seasons of the year and the widely varying climatic situations in northern areas radically affect the employment of amphibious vehicles in landing operations. Extensive mud flats, shallow lakes, and streams make vehicular mobility during the warmer months a greater problem than during cold weather. Working mechanisms of the vehicles may operate sluggishly in cold weather, even though special lubricants are used. Many other mechanical, technical, and tactical problems arise in arctic operations.

a. Sea Ice. The greatest peril inherent in the conduct of cold weather landings is sea ice. In areas where ocean currents prohibit the accumulation of

ice and when no ice is present due to the season of the year, amphibious operations are conducted routinely. In areas where pack ice, in the form of icebergs or landfast ice fields exist, landing operations will be severely limited in scope and may be entirely impossible.

b. Effects of Water. Personnel who are lifted from ship-to-shore in arctic areas must be completely protected from exposure to the water while en route. Immersion for a long period of time may prove fatal. LVT's are ideally suited to dry landings in such arctic areas because of the watertight nature of the vehicle and its ability to attain the beach under most circumstances.

c. Effects of Terrain on Landings. Arctic terrain, in itself, constitutes a difficult obstacle for amphibious forces. The arctic contains landforms varying from extensive coastal plains to rugged mountains cut by long deep fiords. Glaciers, which usually enter or approach very near to the sea, make an unreliable platform for landing and limit the maneuverability of amphibious vehicles. Frozen ground is common to the arctic as a whole during winter months. During the summer months the ground thaws to a depth varying from a few inches to several feet. The underlying permafrost (permanently frozen ground) prevents effective drainage and the result is extensive swampy areas. Coastal arctic plains generally provide an adequate platform for landing LVT's over the beach. The principal limiting factor in such landings is the formation of swampy areas during the summer months. A thorough reconnaissance of proposed landing sites is required prior to any cold weather landing.

Section II. SPECIAL OPERATIONS ASHORE

8–4. General

a. Engineer amphibian assault units can be employed on land to provide armor protected inland mobility for the tactical forces. When a mechanized (LVT) force of this type is organized, it normally operates in a manner similar to mechanized infantry forces (see FM 7–11, FM 7–20, and FM 17–1). In their employment as part of a mechanized (LVT) task force, engineer amphibian assault units and their organic LVT's of the various types can—

(1) Provide lightly armored transportation with overhead protection for personnel of the tactical force.

(2) Provide automatic small arms fire for the tactical force with their organic OEM machineguns.

(3) Transport artillery, mortars, and crews to provide fire support for the tactical force.

(4) Tow artillery weapons for the tactical force.

(5) Provide combat engineer vehicles (LVTE) and crews to provide combat engineer support for the tactical force.

(6) Provide communications vehicles for the use of the tactical commander.

(7) Provide transportation for ammunition, supplies, and equipment of the tactical force.

(8) Provide ambulance service for the tactical force.

b. Additionally, the LVT's are ideally suited for employment in a wide variety of environments because of their diverse capabilities. In many instances, the only limitation in the employment of amphibious vehicles is the resourcefulness of the commander. The special operations discussed in this section include the employment of engineer amphibian assault units and their vehicles as part of a mechanized (LVT) task force and the modifying techniques used in varying conditions and geographic areas. Also discussed is the employment of engineer amphibian assault units in river crossing operations.

8–5. Mechanized (LVT) Task Force

In the initial stages of an amphibious assault it may be impossible or impractical because of hydrographic or other conditions to land armored personnel carriers in landing craft of the amphibious task force. It may also be vital that the tactical commander ashore be provided mechanized means for the support of his landing team to an

inland objective. When armored personnel carriers are not available ashore, the engineer amphibian assault units provide these means for limited distances to attain inland objectives and thus become part of the combined arms team. Land combat and combat support forces of this type are task organized for the specific mission. Figure 8–1 illustrates a recommended disposition of amphibious vehicles of the engineer amphibian assault units used in a land combat and combat support operation as a mechanized (LVT) task force. Every effort, however, should be made to land tanks in landing craft to participate in the mechanized (LVT) task force.

a. Concept of Employment. Mechanized (LVT) forces of this nature may be organized to accomplish any of the following missions:

(1) Linkup of waterborne and airmobile assault elements.

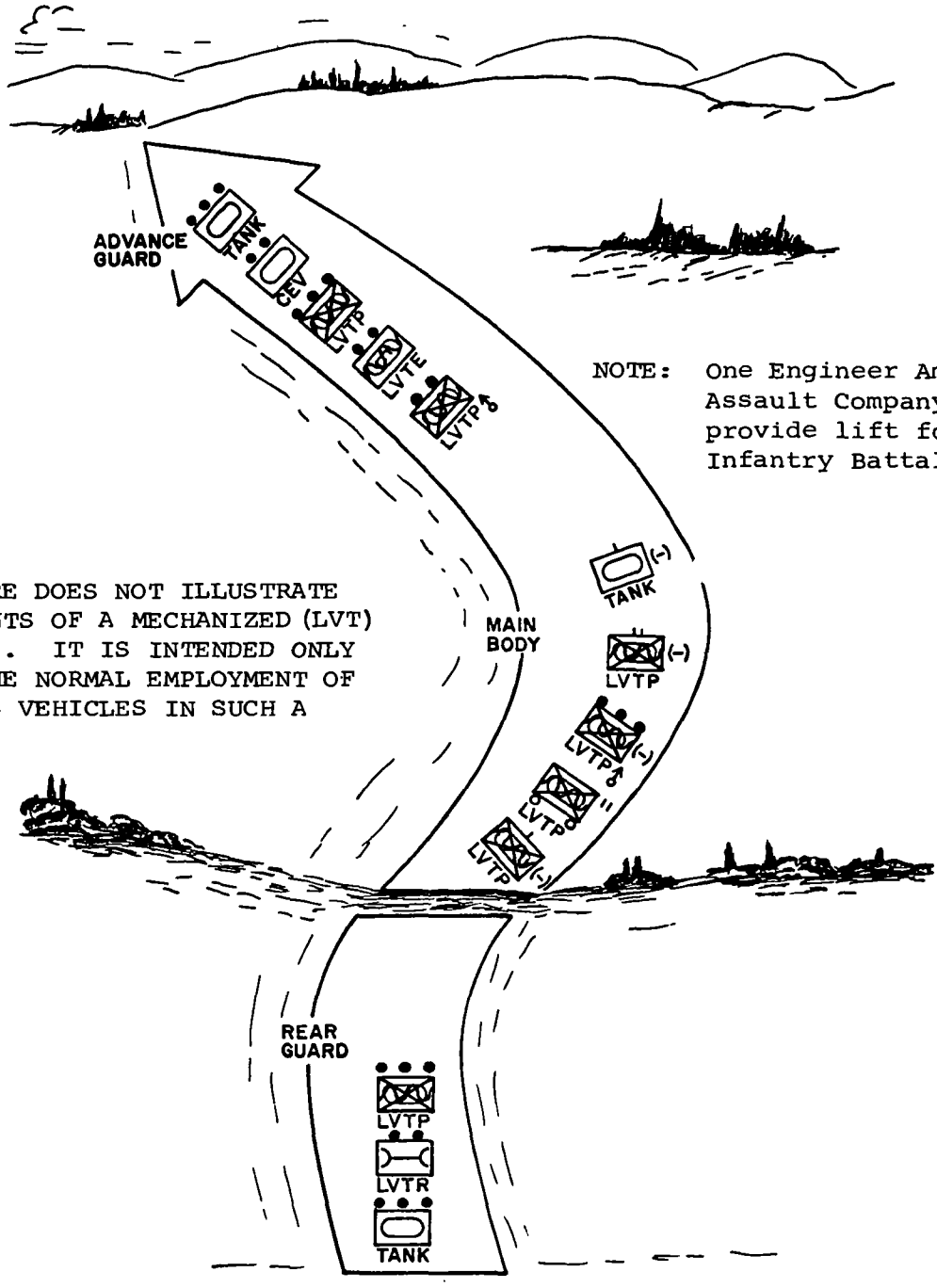


Figure 8–1. Amphibious vehicle disposition in a mechanized (LVT) task force.

(2) Pursuit of the enemy.
(3) Seizure of inland objectives.
(4) Counterattack.
(5) Defense against amphibious and airborne landings.
(6) Conduct of spoiling attacks.
(7) Exploiting local successes.
(8) Relief of isolated units.

b. Organization of the Force. As previously stated, each force of this type is task organized to accomplish the objectives of that particular force. All such forces contain combat, combat support, and such combat service support elements as are essential to the accomplishment of the mission. Conventional armor units, when available, are included in the force. If the terrain is favorable, wheeled vehicles may also be included. Planning must provide for the early deployment of air defense artillery units to limit the effectiveness of enemy offensive air efforts to a level permitting freedom of action. Particular attention must be given to low altitude approaches which naturally exist along rivers. In addition to infantry, armor, and engineer amphibian assault units, elements of the following units may be included:

(1) Combat engineers.
(2) Field artillery.
(3) Tactical air.
(4) Naval gunfire.
(5) Medical.
(6) Antitank.
(7) Reconnaissance.
(8) Communications (other than organic).
(9) Helicopter.
(10) Air defense artillery.

c. Planning Considerations. The following considerations influence planning of mechanized (LVT) task force operations:

(1) *Terrain considerations.* A mechanized (LVT) task force of combined arms is highly sensitive to terrain. Selection of routes to be used may be the principal factor affecting composition of the force.

(2) *Assembly area.* Selection of a large, covered area for assembly of units, with sufficient trails or roads to support heavy and continuing vehicle traffic, is an area of assault in which engineer amphibian assault units are involved. In addition, the internal organization of these areas, to include routing of vehicles, position of vehicle loads, locations of fueling and service areas, and disposition of vehicles after loading is considered. Proper alignment of vehicles in accordance with the planned scheme of maneuver is accomplished.

d. Fire Support Elements.

(1) *Artillery.* Artillery may be towed or carried by the LVTP5 (see app. M). The LVTP5 is also used to carry the crews and ammunition. If self-propelled artillery or tanks are available, they are included to furnish fire support for the task force.

(2) *Mortars.* Fire support is also obtained by transporting the 4.2-inch mortar, crews, and ammunition in the LVTP5. Employment of the LVTP5 in this role requires extensive prior planning and preparation of vehicles and mortars. Among the important considerations are securing the piece during movement of the vehicle, hauling and handling of ammunition, firing procedures, and means and location of fire direction center (FDC) operation.

(3) *Naval gunfire and tactical air support.* Plans should also include the employment of naval gunfire and tactical air support and the inclusion of air and naval gunfire observer personnel in the force.

e. Combat Service Support Considerations. Combat service support is the area most likely to affect the success of mechanized (LVT) task force operations. Proper and complete combat service support planning provides the force with a self-sustaining capability until planned resupply is effected. Perhaps the most important single factor in this planning is to place all such planning under the cognizance of one officer. There must be complete coordination of effort in this respect. Individual units plan and submit their requirements for support during the operation. Only the task force commander possesses the capability of integrating all requirements into a workable plan.

(1) *Maintenance considerations.* Additional maintenance personnel, supplies, and

equipment are required to sustain a mobile force of this nature. Recovery vehicles, such as the LVTR, are included in the force.

(2) *General supply considerations.* Vehicles organic to the forces are used to transport sufficient rations, ammunition, and general supplies for all units. This element may be divided into an immediate resupply unit situated with the task force and a backup resupply train located in the rear of the force and responsive to orders to advance as the situation permits.

(3) *Resupply procedures.* The task force lifts enough supplies of all types to provide for itself through seizure of the objective and for a predetermined period of time thereafter. When possible, any resupply required during movement or after arrival at the objective is accomplished by helicopter. Proper employment of helicopters provides lift for bulk fuel cells and additional oils and lubricants, as well as all other required supplies.

f. Mechanized (LVT) Task Force Communications. In order to fully exploit the potential of mechanized (LVT) task forces, dependable communications are mandatory. Without such communications, command cannot be exercised, reaction time is slow, and decisions lack timeliness.

(1) *Extent of communications.* Communications are required within the force, with any units included in a linkup plan, with higher headquarters, and with units external to the force itself, such as air, naval gunfire, combat service support elements, and emplaced artillery.

(2) *Common frequencies.* Ability of all task force elements to communicate with each other by radio is essential. Installation of additional radios in those vehicles without compatible communication equipment is accomplished.

(3) *Mobile command post.* The task force commander and his staff may be provided LVTPC vehicles in order that mobile command posts may be established. Sufficient equipment is contained or can be installed therein to provide required internal and external communications. Appendix N lists communication equipment available in the LVTPC for embarked commanders.

(4) *Other communication means.* Alternate methods of communication within the force are sound and visual signals, messengers, and pyrotechnics.

g. Command and Control. The commander of a mechanized (LVT) task force is normally selected after consideration of the following factors:

(1) Type of mission.

(2) Size and composition of individual combat forces.

The task force commander is provided a staff of sufficient size to administer the force. Representation on the staff is provided those units on which most of the responsibility for conduct of the various phases of the operation will fall. Close liaison with all units making up the force is mandatory, and must be continuous. Attaching units of the task force, to include air elements, provides for closer control by the commander.

h. Disposition of Disabled Vehicles. Once committed, the mechanized (LVT) task force is aggressive in continuing its attack to the objective. Positive action is planned for and taken with regard to disposition of disabled vehicles. Those which cannot be repaired before the rear point of the force has passed, and are in danger of capture by the enemy, are unloaded and destroyed. If little or no possibility of capture exists, vehicles are unloaded, abandoned, and later recovered by the force itself or by a backup combat service support unit.

8–6. Night Operations Ashore

When LVT's are employed as components of a mechanized (LVT) task force during night operations, certain other factors must be considered. In planning for a night operation, consideration should be given to the following:

a. Night Attack Characteristics. Night attacks are characterized by a decrease in aimed firepower, compensated for by an increase in fire concentrations; by limited visibility and control, giving added emphasis to the importance of planning; and by a decrease in distance to the target, based on difficulties in maintaining direction and control.

b. Planning. Factors of importance in planning for night operations are—

(1) *Reconnaissance.* Detailed and thorough reconnaissance during daylight and darkness is conducted. Physical reconnaissance is supplemented by aerial photographs, maps, and surveillance devices. Important considerations include the positive location of the assembly area, attack position, routes of advance, line of departure, probable line of deployment, and the objective.

(2) *Maneuver plan.* The plan of maneuver to the objective is based on the scheme of maneuver of the supported unit. Where possible, changes of direction are avoided once the line of departure has been crossed.

(3) *Formations.* LVT's normally cross the line of departure in a line of platoons in column. Distance between elements is kept to a minimum in order to assist in control. Tanks, if available, deploy in a line formation, allowing maximum unobstructed fire support with their weapons when direct fire is used.

(4) *Control measures.* In addition to normal internal control procedures, the following techniques are utilized during night attacks:

(*a*) Platoon points of departure are established.

(*b*) Platoon routes of advance are selected.

(*c*) Section release points are utilized.

(*d*) Phase lines beyond the objective and to the flanks are designated.

(5) *Means of identification.* Identification within units is accomplished by use of panels on vehicles, armbands on personnel, luminescent markers affixed to leaders, searchlights or other lighting schemes, and tracer ammunition. Detailed planning is required in this area.

(6) *Miscellaneous considerations.* LVT commanders consider such other factors as the scheduled time of attack, fire support plan, employment of their vehicles after seizure of the objective, battlefield illumination, and combat service support requirements in preparing for operations at night. Proper employment techniques are planned that insure maximum protection to vehicles and personnel against counterfire and antitank means.

8–7. Desert Operations

The nature of the desert, that of open terrain with great distances generally unimpeded by obstacles, lends itself to military operations by a highly coordinated, mobile, self-sustaining force. Amphibious vehicles, such as the LVT's, when properly prepared for such missions, can be employed in desert operations. Principal limitations to their desert employment are inherent maintenance problems of the vehicles resulting from the design compromises necessary to make them amphibian in nature. The fluidity of a mobile task force operating in the desert creates all of the maintenance and supply problems inherent in mechanized (LVT) task force operations as discussed in paragraph 8–5. The effects of heat on embarked passengers and crew must be considered a limiting factor, particularly when operating with all hatches closed.

a. Considerations Involved in Desert Operations. Major military considerations involved in desert operations, all of which influence the employment of amphibious vehicles, are—

(1) *Highly mobile forces.* In the desert vehicles are not roadbound and can move rapidly cross-country. Critical terrain features are usually widely separated, necessitating employment of a rapidly moving force. Because of the open nature of desert terrain, heavy reliance is made on the use of compasses and other navigational equipment to maintain direction.

(2) *Adequate maintenance and supply procedures.* As in other mechanized operations, an adequate and continuing supply of fuels, lubricants, spare parts, and general supplies is critical to the efficient operation of amphibious vehicles. The matter of the supply of water is as critical to vehicles in the desert as to the occupants of the vehicle. There is a limit to the quantity of fuel and water which can be carried by vehicles themselves, since any increase in amounts of these liquids carried creates a resulting increase in the number of vehicles which must be utilized.

Helicopter resupply, to include water supply, in many instances is the most feasible solution in desert operations.

(3) *Dependable communications.* Communications by wire during desert operations is virtually impossible because of the mobility of desert forces. Radio is relied upon as the principal means of communications within and outside of the force. Extensive preventive maintenance of communication equipment is required to prevent damage to the equipment by sand, dust, and extreme heat. As in the mechanized (LVT) task force concept, common frequencies for all units are required. At times, this necessitates installation of additional radio sets in some vehicles.

(4) *Coordinated action between ground and air elements.* This coordination includes the provision of combat service support by helicopter, as well as tactical support by observer, fighter, close support, and photo aircraft.

b. Principal Vehicular Considerations. The problems involved in committing a vehicle designed as amphibious in nature to prolonged periods of operation in hot, dry regions are many and complex. Only the major areas of concern are outlined below to familiarize the commander with the extensive vehicular limitations involved.

(1) *Mobility.* The desert floor generally creates a good platform for tracked or wheeled vehicle movement. Sharp turns and abrupt halts are avoided, reducing the possibility of the vehicle sinking into the sand. Some areas of soft sand may be encountered that require matting to enable heavy amphibious vehicles to cross them.

(2) *Cooling system.* The heat of the desert adds emphasis to the need for an adequate, efficient cooling system. The LVT, for example, has a cooling system capacity of 60 gallons of water. Maintaining a supply of water sufficient to cool all vehicles is, in itself, a major consideration. The entire cooling system, to include fan operation, should be carefully checked prior to employing vehicles in the desert. Installation of new hoses and replacement of defective cooling system components are effected as required.

(3) *Navigational equipment.* The desert, because of its open, flat nature, increases the requirement for navigational equipment contained within vehicles. As a minimum, magnetic compasses are installed in any vehicles not already so equipped.

(4) *Batteries.* Battery water evaporates rapidly in the desert, and distilled water is difficult to obtain. Distilled water is kept in nonferrous containers to reduce evaporation and to prohibit introduction of impurities. A supply of spare batteries is required.

(5) *Camouflage.* If possible, vehicles are painted with camouflage paint before being committed to operation in the desert. An alternate means of camouflage is achieved by covering the vehicle with grease or oil and allowing sand or dust to adhere to the surface.

(6) *Damage from sand and dust.* Many precautions are taken to protect vehicles from sand and dust damage. The engine is protected by keeping it as free as possible of oil and grease. Sand and dust cannot adhere to a clean surface. Care is exercised in fueling, lubricating, and changing oil in vehicles to insure that sand and dust do not gain entrance to working mechanisms. Filters are inspected frequently and changed or cleaned as necessary.

8–8. Jungle Operations

Amphibious vehicle operations in the jungle environment may be limited to tracked vehicles only. The absence of trafficable roads often precludes effective employment of wheeled vehicles such as the amphibious truck. Jungle terrain is typically rugged, with deep valleys and steep ridges, all of which are heavily overgrown with dense vegetation. Streams and rivers are common, and are fed by the normally heavy rainfall. Existing trails and roads are narrow, muddy, and often overgrown, either entirely or in part. These must generally be widened to accommodate the great bulk inherent in amphibious vehicles. Visibility is

severely reduced by jungle growth and vegetation. Amphibious tractors, such as the LVT's, may be the only vehicle available to the commander for lift of personnel and equipment while employed in the jungle.

a. Tactical Consideration. Jungle warfare normally combines several types of special operations, such as river crossings and night combat. Tactics for amphibious vehicles involved in these classes of operation are valid but are affected by the jungle environment. Critical terrain features in the jungle are roads, trails, bridges, and communication centers. High ground is less critical because of reduced visibility.

(1) *Mobility and security.* Cross-country movement is difficult, even for tracked vehicles, and mobility is drastically decreased. As a result, the need for local security of amphibious vehicles increases. Without such security, enemy antitank personnel are able to approach tracked vehicles without detection. Efficient reconnaissance of routes to be taken by amphibious vehicles allows the vehicles to avoid impassable swamps, mountains, valleys, and areas where there are no trails whatever.

(2) *Camouflage.* Excellent facilities for natural camouflage of vehicles and personnel exist in the jungle. Overhead observation is virtually impossible if proper precautions are taken.

(3) *Navigation.* Based on limited observation and lack of recognizable terrain features, map reading and compass use are important to navigation. Maps reflecting trails and roads in the jungle are not always accurate, and cannot replace physical reconnaissance. Magnetic compasses are installed in all amphibious vehicles not already so equipped.

b. Combat Service Support Considerations. Resupply during operations in the jungle is complicated by the environment. Once supplies have been received, they are prone to rapid deterioration because of moisture. Supply of fuel, water, and lubricants always important to the amphibious vehicle unit, may be a problem. As the only vehicle able to negotiate the terrain and reach elements committed inland, the amphibious tractor's most important role in jungle operations may well be as a combat service support or supply vehicle.

c. Vehicular Considerations. The climatic conditions encountered in jungle areas have a deteriorating effect on all metals, rubber, and, in particular, working parts of weapons or vehicles. Rust forms quickly and preventive maintenance requirements are strict. Lubrication of working parts is accomplished daily. Oil levels are checked and maintained at maximum capacity. Communication equipment, to include antenna mounts, is inspected and lubricated as necessary. The ever-present moisture renders equipment unserviceable rapidly unless preventive maintenance procedures are thorough and continuing.

d. Communication Considerations. Signal communication is often difficult. Visual signaling is seldom possible; the use of runners is slow and frequently hazardous; the range in radio may be reduced greatly by foliage and hill masses; and wire circuits are hard to install and maintain. Moreover, batteries used with communications equipment will require special handling to prevent rapid deterioration.

8–9. Mountain Operations

Employment of amphibious vehicles in mountain operations is limited in scope by the weight and bulk of the vehicle itself, as well as the difficulty of supporting an engineer amphibian assault unit logistically in mountainous areas. Tracked amphibious vehicles possess the ability to ascend grades of 70 percent, and can negotiate 60 percent side slopes with a combat load. These characteristics, however, are intended principally to enable the vehicle to negotiate obstacles and climb hills close inshore, rather than for extended mountain operations. Employment of amphibious vehicles to transport troops, supplies, and equipment in limited mountain operations is possible. However, care is exercised to insure that roads over which the vehicles travel are passable. Tracked amphibious vehicle brakes are not built to support rapid or frequent stops. There is an inherent problem of stalled vehicles on narrow roads, which prohibit passage or turnaround of other vehicles. This is guarded against, when possible, by choosing multiple routes and positioning maintenance per-

sonnel and recovery vehicles throughout the column.

8–10. Cold Weather Operations

Amphibious vehicle units operating under conditions of extreme cold are faced with problems of mobility, added maintenance, and survival of personnel. In arctic or cold weather operations, mobility of vehicles becomes a greater problem in warm weather than cold because of lakes, streams, and mud formed by melting ice. Maintenance of vehicles is a major problem, based on behavior of the vehicle under conditions of extreme cold as well as difficulty which personnel experience in performing maintenance and repair service because of the cold. Service facilities are difficult to establish and maintain. Vehicles are winterized through addition of proper weight oils and lubricants, and installation of heaters. Special training of personnel is essential before committing engineer amphibian assault units to combat in cold weather regions.

a. Tactical Considerations. The arctic terrain is rugged and mountainous, cut by long valleys, streams, and rivers. In areas where the climate is relatively temperate, operating conditions resemble those found in other parts of the world. However, where ice and snow are found year round and temperatures drop well below zero degrees during the winter months, the most difficult of operating environments is created.

(1) *Mobility.* Only tracked amphibious vehicles may operate in areas of frozen ground or snow, or in areas where frozen ground has melted to some degree during warmer weather, creating streams and areas of mud. Even the tracked vehicles experience great difficulty in achieving any real degree of mobility under such circumstances. Where loose snow exists in quantity, the LVT operates dependably only to a level of 20 inches of snow, after which it is prone to bury itself because of the low slung configuration of its chassis. Frozen ground is broken by deep ruts into which vehicles may fall without warning. During melting periods, mobility is even more restricted. The formation of streams and extensive mud areas during this period present a formidable obstacle to amphibious vehicle operation.

(2) *Camouflage.* Lack of vegetation in arctic areas increases the requirement for camouflage discipline. Ingenuity is required in order to conceal the bulk of an amphibious vehicle. Camouflage of areas where many vehicles are situated, such as tractor parks and maintenance areas, presents an even greater problem. The phenomenon known as ice fog is the direct result of crystalization of exhaust or similar fumes. The resulting clouds of ice fog rise directly above the source in low temperatures, pinpointing a vehicle with engines operating. Increased winds and resulting temperature rise negate the effect of ice fog to some degree. Camouflage painting for arctic operations will normally be prescribed by the landing force.

(3) *Communications.* Restriction of vehicular mobility lessens the problems encountered in communications in cold weather. Cold weather has a detrimental effect on wire, as well as on radio batteries, which have low efficiency and a short lifespan in arctic regions. Radio is relied upon as the principal means of communications between vehicles and units.

b. Combat Service Support Considerations. Weather conditions and terrain in arctic regions restrict the efficiency of resupply and ability of units to maintain vehicles and store supplies. The importance of a flexible, practical combat service support plan cannot be overemphasized. Engineer amphibian assault units may provide the principal means of moving supplies from ship-to-shore and in the subsequent operations ashore. Combat service support considerations of increased importance while in arctic regions include continued supplies of hot rations, water, clothing, lubricants and oils, and repair parts to replace those damaged by cold weather.

c. Vehicular Considerations. The problems involved in operating amphibious vehicles over arctic terrain and in very cold temperatures are of the most complex nature. Detailed prior planning, preparation of vehicles, and training of personnel is required if arctic operations are to achieve success. Principal vehicular considerations include—

(1) *Condition of suspension system.* Wet snow may become packed in the tracks of amphibious vehicles, temporarily restricting or immobilizing them. The same effect may result from ice, which is more difficult to remove. Tracks freeze to the ground in moderately cold weather, occasionally to the degree that tools may be required to extricate the vehicle.

(2) *Carbon monoxide hazard.* Intense cold, strong winds, and heavy snowfalls all induce personnel to seek whatever shelter is available in arctic regions. The interior of the LVT offers warmth and protection from the elements. Care is exercised to insure that persons seeking shelter do not suffer carbon monoxide poisoning. The following are criteria for use of the LVT as a warming area during cold weather:

(*a*) Personnel do not occupy LVT's for sleeping unless authorized by the engineer amphibian assault unit commander.

(*b*) If personnel are authorized to sleep aboard vehicles the two rear access hatches are kept open at all times.

(*c*) Personnel will not be aboard vehicles while engines are started and idled, or after such idling until the vehicle has been ventilated.

(3) *Main engine.* The greatest problem inherent in cold weather engine operation is lack of engine lubrication resulting from thickened oil. Appendix I sets forth cold weather starting procedures for LVT main engines.

(4) *Batteries.* Battery power decreases rapidly during cold weather and batteries cannot be satisfactorily charged once the electrolyte temperature is less than zero degrees. Extended hours of darkness and low temperatures create increased demands on electrical systems, and batteries in particular. Protection is afforded batteries by servicing and cleaning them frequently. Batteries often must be heated before recharge and use during cold weather.

(5) *Winterization kit.* The LVT winterization kit is designed to supply large quantities of fresh heated air to preheat and maintain warmth in the personnel and cargo and engine compartments. The kit may be used to heat a vehicle which has been idle for a long period of time, or as a standby heater to maintain satisfactory compartment temperatures during periods when engines are not operating.

8–11. River Crossings

LVT's are well suited for employment in river crossing operations. The LVTP5's may be utilized as troop carriers, or as expedient floating bridges. The LVTE may be used to breach minefields on the near and far shores. The LVTP5's may also participate as combat service support vehicles during the river assault and after the bridgehead has been secured.

a. Vehicular Advantages and Disadvantages. The same conditions governing employment of amphibious vehicles during the amphibious assault apply during river crossings. A principal advantage of their employment is their ability to move on land and water without modification. The LVT's present a low silhouette while waterborne, protect embarked personnel from small arms fire, and provide a specialized vehicle (LVTPC) for purposes of communications and control. Important disadvantages of the vehicles are slow water speed, limited maneuverability while afloat, noise, and extensive maintenance problems.

b. Tactical Considerations. Principal considerations when employing amphibious vehicles in the conduct of river crossings are—

(1) *River width.* The river's width normally is the most important consideration in determining a crossing site. Selection of the narrowest point lessens the combat service support burden, facilitates control, and places the largest number of troops on the opposite shore in the shortest period of time.

(2) *Condition of river banks.* The height, slope, and soil composition of far shore and near shore river banks determine their trafficability for tracked vehicles, and influence the selection of crossing sites.

(3) *River velocity.* The slow water speed of amphibious vehicles makes river velocity

an important consideration. Vehicle entrance upstream from intended landing sites may be required in order to compensate for strong currents.

(4) *Mines, barriers, and obstacles.* The existence of mines, barriers, and/or obstacles can impede river crossings. Employment of the special purpose engineer vehicle, the LVTE, should be considered in all cases.

(5) *Approaches to crossing sites.* Care is exercised to insure that approaches to crossing sites such as roads, trails, or overland areas will support continued heavy vehicular traffic. Routes are selected to support each unit crossing.

(6) *Enemy air activity.* The capability of the enemy to attack from the air can impede a river crossing. Air defense should be considered in all cases.

c. Planning for River Crossings. Principal planning considerations in preparing for river crossing operations are—

(1) Allocation of vehicles as personnel carriers, supply vehicles, and for other uses.

(2) Time and location of assembly of the force.

(3) Routes and method of approach to crossing sites.

(4) Development of an artillery plan to assist in covering noise made by vehicles of the LVT type.

(5) Vehicle formations during an assault crossing.

(6) Requirement for engineer support to prepare assembly areas, routes of approach, or crossing sites including river entrances and exits for amphibious vehicles.

(7) Employment of amphibious vehicles once the crossing by the supported force is completed.

(8) Development of an air defense plan.

d. Control. Control measures are completed to insure that vehicles cross the line of departure as scheduled, maintain proper formation, and use designated approach routes and crossing sites. Control is exercised through the commander of the engineer amphibious unit.

(1) *Route markings.* Routes and sites are marked with white or luminescent markers. Guides are used extensively in directing vehicles.

(2) *Amphibious vehicle formations.* During assault crossings amphibious vehicles utilize company, platoon, and final release points to control vehicular movement to the river. After passing company release points, platoons move forward along approach routes and assume their crossing formation upon reaching the point of final release. Use of release points helps insure proper coordination and timing, just as control points do in the night attack.

e. Employment of the LVTP as a Floating Bridge. In an emergency, the LVTP may be employed as a temporary floating bridge to support rapid river crossings by combat forces. Principal factors limiting this application are river width and river current, either of which may prohibit or render unwise this employment. Vehicles are lashed together, bow to stern, or connected by temporary bridging material when the water is calm. Figure 8–2 illustrates a possible method of LVTP employment for bridging purposes.

f. Employment of the LVTE. The LVTE can be of considerable assistance in the conduct of river crossing operations. In the event the river is shallow, the line charge can be relied on to destroy most submerged mines as a result of overpressures. There can be no insurance, however, that the line charge will destroy moored mines, since they have the capability of moving with the force of the blast. Small obstacles, such as abatis submerged in rivers, may be destroyed, as may log booms or some types of submerged wire obstacles. The key to successful employment of the LVTE in this environment will be proper intelligence concerning the engineer efforts of the enemy. Once the river is crossed, the LVTE can effectively breach enemy minefields on the opposite shore, using the same techniques employed in the amphibious assault.

g. Subsequent Employment. On completion of initial missions, amphibious vehicles may be employed as components of a mechanized (LVT) task force or revert to employment as combat support or combat service support vehicles, as required.

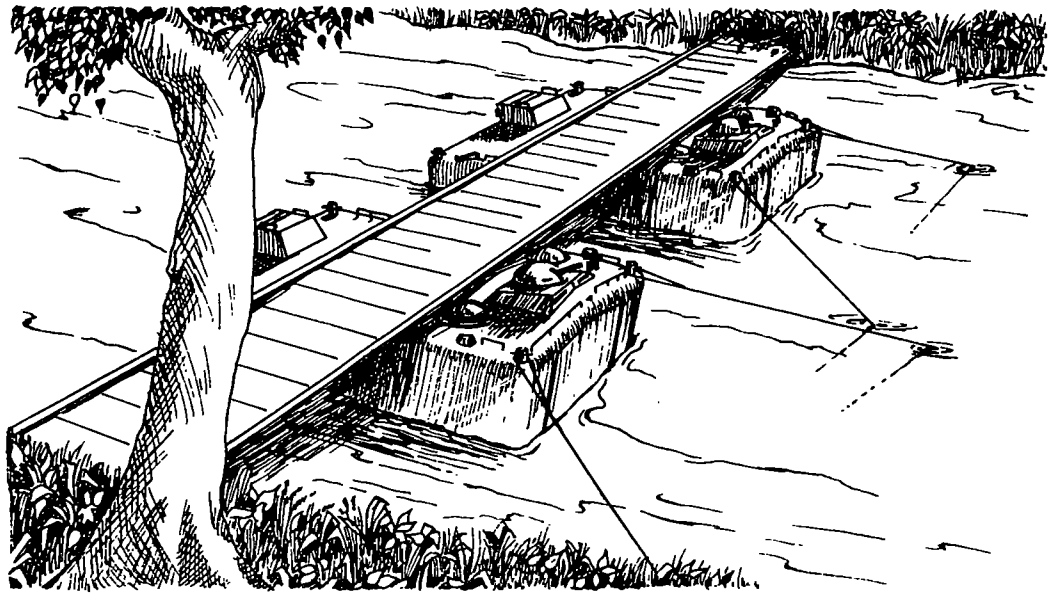


Figure 8–2. LVTP's employed as bridge pontoons.

h. Shore Parties for River Crossings. When an engineer amphibious unit (brigade, group, or battalion) is assigned to a river crossing operation its shore party element will provide in general the support described in FM 31–60. The task organization and the equipment required will depend on the tactical and combat service support situation. The shore party headquarters may be placed within the engineer echelon of the force, with elements of its headquarters present on the near and far shore.

8–12. Shore-to-Shore Operations

a. Definition. A shore-to-shore operation is a land force operation involving a water crossing in assault craft, amphibious vehicles and aircraft, for the purpose of establishing a force on, or withdrawing it from a far shore. It is usually a uni-service operation.

b. Planning and Organization. Army forces normally operate unilaterally in shore-to-shore operations, providing all personnel and equipment required for the embarkation, movement, and landing of a combat force in an attack formation. As in an amphibious attack, shore parties at each echelon of the landing force provide the combat and interim combat service support pending establishment of normal support systems in the landing areas. Shore-to-shore operations apply essentially the same techniques as used in amphibious operations. The shore party area of responsibility extends from the rear limits of the dispersal and assembly areas on the near shore to the forward edge of the beach support area on the far shore. Normally a navy beach party is not available, and its functions will be performed by army elements. FM 31–12 provides guidance for commanders, staff officers, and other interested personnel for planning and execution of shore-to-shore operations. FM 31–12 also defines the employment situations in which shore-to-shore operations would be accomplished.

(1) *Embarkation.* Embarkation support is provided by the shore party, including assistance in preparing plans and orders, control of the embarkation procedure, and preparation of embarkation facilities. Troops and equipment, dispersed in near shore assembly areas and dumps, are phased-out to the embarkation points on a planned time schedule. Control is established through a shore party communications net to include the near shore elements, the movement means, and the far shore.

(2) *Movement.* The movement from near to far shore is generally in three phases:

(*a*) Craft and amphibious vehicles initially

remain in the vicinity of the near shore in an assembly area until dispatched.

(*b*) Craft and amphibious vehicles move to a rendezvous point off the far shore.

(*c*) Waves of serials are then dispatched to the shore.

(3) *Far shore organization.* Beach organization on the far shore follows essentially the same pattern as in an amphibious operation. However, the landing force usually is supported with supplies on an on-call basis from the near shore, and the buildup on the far shore is held to a minimum consistent with the distance from one shore to the other. In most shore-to-shore operations, the requirements for shore party support are on a reduced scale on the far shore, since the beach does not require a complex organization on the same scale as that used in an amphibious operation.

c. Loading Operations. Loading of troops and equipment follows the same procedures used in normal embarkation. The shore party commander establishes a central control point, where representatives of the landing force serve as liaison officers and coordinating authorities. At each loading slot, shore party officers are stationed to expedite loading operations. These officers should be assigned in pairs to provide for 24-hour operations.

★8–13. Land Clearing Operation in Forested or Jungle Areas

a. A requirement exists to provide amphibious forces with a specialized land clearing capability to level heavily forested or jungle areas bordering landing beaches which may serve as active or potential sanctuaries for enemy forces, or to clear passages through these areas for lines of communication. To meet this requirement, a tree dozer has been developed which is capable of felling trees up to 48 inches in diameter in a matter of minutes.

b. The tree dozer is a standard military crawler tractor modified by the addition of a cab cover for the protection of the tractor operator, a specially designed horizontal cutting blade, and a vertical wedge-shaped projection or "stinger" at one end. To split trees larger than 1 foot in diameter repeated application of this stinger is required. Split trees and brush are then sheared off at ground level with the horizontal cutting blade to preserve the turf and avoid large root balls which result from the "pushover" method of clearing. This method of land clearing also alleviates dust problems, reduces the amount of debris and leaves no stumps which might provide cover for ambushers. All spoil is windrowed and may be burned when dry.

c. The tree dozers are organic to the specialized engineer land clearing company (TOE 5–87T). The mission of this company is:

(1) To destroy or clear extensive jungles or forests in critical areas for the purpose of denying their use by the enemy as bases of operation, supply bases, marshalling areas, ambush sites, and cover and concealment.

(2) To clear jungles or forests from areas adjacent to friendly installations for the purpose of improving installation security by providing observation and fields of fire, and to reduce the probability of ambush along land lines of communication.

d. In many cases the engineer land clearing company would prove to be an invaluable addition to an amphibious task force required to land on tropical or other areas where trees or dense growth line the beach. Land clearing companies, landed after the assault waves, are employed to clear areas needed for the beach support area and to clear lanes through jungle or forest as access roads inland. Normally land clearing companies are attached to shore parties to perform clearing operations in the beach support areas. In some cases they are attached to the tactical forces to clear lines of communication roads, inland from the landing beaches.

e. Details concerning the organization and equipment of the engineer land clearing company are contained in TOE 5–87T. Details concerning the techniques employed in land clearing operations are contained in TM 5–330 and TM 5–331A.

CHAPTER 9

INTERNAL DEFENSE OPERATIONS

9–1. General

The doctrine for employment of engineer amphibious units in limited and general war operations applies, with significant modifications, to internal defense situations.

a. Internal defense operations encompass the military, paramilitary, political, economic, psychological and civic actions taken by a government to defeat subversive insurgency.

b. The ultimate objective in combatting insurgency is to eliminate the causes of the insurgency and prevent its recurrence. Engineer amphibious units may support tactical and nontactical units conducting operations over larger areas; therefore, engineer brigade or group operational plans must anticipate problems of control and maintenance support.

c. Engineer amphibious units may be committed to support field internal defense operations (clear and hold and/or search and destroy) being conducted in a particular area such as a region, province, district, corps, or division. This may entail support of U.S. and/or receiving state (RS) combat units in tactical operations, support of RS agencies in internal security operations, assisting RS forces in military civic action, assisting RS forces through advisory assistance by providing mobile training teams (MTT) to RS armed forces, paramilitary forces, or civilian agencies.

d. For a detailed discussion of internal defense operations, see FM 31–22 and FM 31–22A. For additional guidance in internal defense operations, see FM 5–170, FM 31–21, FM 31–73, FM 100–5, and FM 100–20.

9–2. The Internal Defense Environment

a. Many factors contribute to making the internal defense environment different from that encountered in conventional or nuclear positional warfare. Among these factors are—

(1) The terrain is usually less suited for the employment of a modernly equipped military force.

(2) Forces usually are dispersed over an extremely wide area.

(3) In guerrilla warfare situations, the adversary generally is elusive, hard to identify, highly trained in the techniques of guerrilla warfare, and well motivated.

(4) Sophisticated insurgent paramilitary or armed forces, organized and equipped in battalion or larger size units, may engage in conventional type battles using regular formations supported by heavy weapons.

(5) The necessity to win the support of the people is a continuous requirement in internal defense operations; in this respect, the application of firepower must be highly selective and restrained when conducting combat operations among a population whose physical well-being and materiel resources must be protected in order not to alienate them from the RS government.

(6) Since units may be dispersed over extremely wide areas, command supervision, to include training, maintenance, and other activities, will be more difficult.

b. Small unit commanders will be required to make decisions based on their own judgment, considering the situation at hand, rather than on specific guidance and directions received from higher headquarters. The imagination and initiative of individual commanders will contribute to the effectiveness of engineer amphibious units.

c. All commanders are responsible for the security of their commands. In internal defense

operations, all security requirements will be increased considerably. Engineer amphibious units often may require assistance from other tactical units to preclude security requirements from hampering the amphibious units' mission.

(1) In internal defense operations, all movement is subject to ambush. The organization of convoys and degree of protection required will depend on the actual or potential capabilities of the insurgents in the area through which the convoy will travel. All movements must be treated as tactical moves and appropriate actions taken. Since engineer amphibious units may be employed on inland waterways and inundated areas, they must be properly trained in counterambush techniques to insure a high probability of surviving ambush. See FM 31–16, FM 31–22, and the FM 7-series for detailed discussion of counterambush measures.

(2) Engineer amphibious units in a static position, such as a port development site, may be required to establish extensive security measures. This can be achieved by employing organic troops or by utilizing security forces from other U.S. or RS armed forces or RS paramilitary and police units. See FM 31–22 and FM 7-series for defensive measures.

9–3. Mission of Engineer Amphibious Units in Internal Defense Operations

Engineer amphibious units may support U.S. MAAG, Missions, Military Assistance Commands (MAC), U.S. and/or RS armed forces, RS paramilitary forces, and U.S. and/or RS civilian agencies. This may entail support of tactical operations, supporting RS agencies in internal security operations, assisting U.S. and RS forces in military civic action, assisting the RS through advisory assistance by providing MTT to RS armed and paramilitary forces or civilian agencies, and, finally, participating in intelligence and psychological operations. Augmentation from the 5–500, 33–500, and 41–500-series TOE may be required to provide a greater capability to adequately perform all missions.

9–4. Concept of Operations

Engineer amphibious units may support both U.S. and RS military and civil elements conducting operations over vast areas. Their amphibious capability will be applied whenever and wherever they can best support the overall operation being conducted in an assigned area, such as a region, province, district, corps, or division.

9–5. Organization

a. Engineer amphibious units, when committed, usually will maintain their organizational integrity, but may be organized provisionally into task forces, depending on the particular skills and equipment required. Engineer amphibious units may be attached or placed in direct support of U.S./RS armed forces or RS paramilitary and civilian agencies. Direct support is desirable since it allows the brigade, group, or battalion flexibility in meeting support requirements throughout the operational area; however, since the supported units may often conduct several types of operations simultaneously, in widely separated locations, attachment may be the most common and desirable method of employment.

b. The composition of the engineer amphibious battalion is suitable for any number of task organizations to support U.S. or RS units in any type of operation conducted as part of the overall internal defense effort. A type mechanized (LVT) task organization that the engineer amphibious battalion may provide for a company size operation might include the following vehicles and crews:

(1) Two tanks, to provide artillery support (if available).

(2) Two LVTE, to provide combat engineer support.

(3) Two LVTC, to transport the command and control party.

(4) Six LVTP, to transport the company assault elements.

(5) Two LVTP, to transport the company fire support elements.

(6) One LVTP, to transport unit supplies.

(7) One LVTP, to transport casualties.

(8) One LVTR, to provide LVT maintenance support.

9–6. Tactical Operations

When supporting tactical operations against insurgent forces, engineer amphibious units operate in accordance with the doctrine prescribed in the previous chapters. Some modifications are required to fit the specific internal defense situation. Positional warfare tactics and techniques must be modified to fit the special requirements of the operational environment and the nature of the insurgent threat. Additionally, every advantage must be taken of the flexibility, mobility, and firepower of the LVT's of the engineer amphibian assault companies in their employment against insurgent forces.

a. Since engineer amphibious units may be supporting relatively small tactical forces in isolated locations, they may be required to actively assist in the static defense of the village, outpost, camp, or similar installation in which they are quartered.

b. The scope of all engineer support for tactical operations will be increased considerably, particularly in underdeveloped areas of the world. Engineer amphibious units must expect and be prepared to furnish more than the "normal" amount of tactical support and assistance. The scope of support required may necessitate augmentation of the engineer amphibious units from the 5–500-series TOE.

c. Support of internal defense operations may often require that companies, platoons, and/or squads of the engineer amphibious battalion operate independently of and/or at long distances from the parent unit; therefore, there will be an increased requirement at the lower echelons for independent decisions, initiative, and technical knowledge.

d. Resupply of engineer amphibious units may be extremely difficult for those reasons outlined in *c* above; therefore, units employed in this manner should be authorized a special stockage of repair parts, tools, and other appropriate supplies as accompanying supplies.

e. Additional liaison and supervisory personnel may be required when subordinate units (companies, platoons, and/or squads) are widely separated to insure competent support of tactical operations.

f. In addition to the methods of employment discussed elsewhere in this manual, engineer amphibious units equipped with the LVT can render valuable support to internal defense forces engaged in certain types of operations on inland waterways, in inundated areas, and areas containing numerous unfordable canals, streams, and/or rivers. The types of tactical operations and tasks that may be associated in each environment are discussed in (1) through (3) below.

(1) *Inland waterways.* If engineer amphibious units are used to support normal river crossing operations, they may be employed to transport the assault forces as outlined in FM 31–60. Light artillery pieces may be transported in LVTP's to provide near and far shore fire support. Engineer amphibious units also may be used to transport assault units for short distances along inland waterways for an assault landing at predesignated points. Some specific tasks that may be performed by the engineer amphibious units in this situation are—

(*a*) Clearing the waterway and/or landing area of mines or other obstacles.

(*b*) Evacuating civilian personnel from insurgent controlled areas (crossing/landing areas) to government controlled areas.

(*c*) Providing temporary bridging or crossing means of the waterway.

(*d*) Providing inland mobility for the crossing and/or landing force.

(2) *Inundated areas.* Engineer amphibious units may support and provide support to U.S./RS forces conducting operations in large inundated areas. This support may include transport of the combat elements, indirect and direct fire support, obstacle clearance, and transportation for the unit's combat service support elements.

(3) *Areas containing numerous waterways.* Engineer amphibious units may support U.S./RS operations in these areas by providing engineer support, temporary bridging of the waterways, transportation for assault and combat service support elements across the waterways, and/or total mobility for all forces participating in the operation.

9–7. Nontactical Operations

Engineer amphibious units may be required to perform tasks that are not directly connected with tactical operations, such as—

a. Limited lighterage duties in base development operations.

b. Military civic action projects in or near the unit's installation.

c. Engineer support of installations at or near the unit's location.

d. Assistance to local U.S./RS forces engaged in internal security operations.

e. Advisory assistance to RS armed, paramilitary, or irregular forces and RS civilian agencies.

f. Temporary ferry service and/or bridging on important communication routes where normal service has been destroyed or disrupted by insurgent sabotage.

9–8. Advisory Assistance

a. Engineer amphibious units may be required to provide advisory assistance to include furnishing MTT, and training counterpart armed or paramilitary forces in branch or branch immaterial subjects. These operations may include extending USAID, USIS, and other U.S. civilian programs in the RS.

b. The wide range of skills and experience found in engineer amphibious units also provides a source of trained personnel which may be used to advise and train civilian governmental personnel. The unit may be required to provide part- or full-time engineer advisors to civilian agencies at the province, district, city, or village levels.

9–9. Military Civic Action

Military civic action is the use of armed forces on projects useful to the local population at all levels in such fields as education, training, public works, agriculture, transportation, communications, health, sanitation, and others contributing to economic and social development, which would also serve to improve the standing of the armed forces with the population. Civil affairs teams from the 41–500-series TOE may be attached to engineer amphibious units to support civic action programs and to perform the duties described in FM 41–10. These operations include extending USAID, USIS, and other U.S. civilian programs in the receiving state.

a. To a limited degree and when no other engineer units are available, engineer amphibious units can support that portion of the military civic action program which requires assistance and planning in the construction of utilities structures and other similar facilities for use and benefit of the civilian populace. The local population, however, must participate in the accomplishment of projects in order to gain knowledge and experience to perform similar tasks in the future.

b. For typical military civic projects and detailed discussion of military civic action, see FM 5–1, FM 5–162, FM 31–16, FM 31–22, FM 31–73, FM 41–5, FM 41–10, and FM 100–20.

9–10. Psychological Operations

Psychological operations (PSYOP) conducted as part of the overall internal defense program encompass those political, military, economic, and ideological actions planned and conducted to create in neutral or hostile groups, the emotions, attitudes, or behavior to support the achievement of national objectives. When required, psychological operations personnel of the 33–500-series TOE may be assigned or attached to engineer amphibious units.

a. PSYOP conducted or supported by engineer amphibious units must be integrated with and extend RS civilian/military information and PSYOP programs.

b. PSYOP in internal defense operations are of the utmost importance. PSYOP can be of particular usefulness to engineer amphibious units engaged in military civic action projects. A PSYOP campaign should be conducted before, during, and after the completion of a project. Requests for PSYOP assistance should be forwarded to higher headquarters. See FM 33–1 for detailed discussion of PSYOP.

9–11. Intelligence Operations

Intelligence plays a vital role in combatting insurgency. Adequate and timely intelligence is most vital to the overall internal defense program. U.S. military personnel are in excellent positions to collect information, particularly engineer personnel, with close and frequent contacts with the civilian popu-

lace. Conversely, U.S. personnel must be careful of loose talk and the handling of classified material. For detailed discussion, procedures, and role of intelligence in internal defense see FM 30-series and FM 31–22A.

9–12. Internal Security Operations

Internal security operations include supporting U.S. and RS military and civilian police in their responsibilities to maintain a state of lawfulness and taking actions to control human and materiel resources, and to deny insurgent access to these resources. Engineer amphibious units can support internal security operations by—

a. Providing personnel for mob and riot control in accordance with current regulations.

b. Providing assistance in protecting ports, docks, military installations, power stations, waterworks, and other sensitive installations.

c. Providing assistance in establishing checkpoints and border posts.

d. Providing personnel for police-type duty.

APPENDIX A

REFERENCES

A–1. Army Regulations (AR)

AR 27–20	Investigating and Processing of Claims.
AR 320–5	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations and Brevity Codes.
AR 380–5	Safeguarding Defense Information.
AR 385–40	Accident Reporting and Records.
AR 385–55	Prevention of Army Motor Vehicle Accidents.
AR 611–101	Manual of Commissioned Officer Military Occupational Spccialties.
AR 611–112	Manual of Warrant Officer Military Occupational Specialties.
AR 611–201	Manual of Enlisted Military Occupational Specialties.
AR 735–35	Supply Procedures for TOE Units, Organizations, and Non-TOE Activities.
AR 750–1	Maintenance Concepts.
AR 750–5	Organizations, Policies and Responsibilities for Maintenance Operations.

A–2. Department of the Army Pamphlets (DA Pam)

DA Pam 27–10	Military Justice Handbook: The Trial Counsel and The Defense Counsel.
DA Pam 108–1	Index of Army Motion Pictures, Filmstrips, Slides and Phono-Recordings.
DA Pam 310-series	Index of Military Publications.
DA Pam 750–1	Preventive Maintenance Guide for Commanders.

A–3. Field Manuals (FM)

FM 3–8	Chemical Corps Reference Handbook.
FM 3–10	Employment of Chemical and Biological Agents.
FM 3–12	Operational Aspects of Radiological Defense.
FM 5–1	Engineer Troop Organizations and Operations.
FM 5–13	The Engineer Soldier's Handbook.
FM 5–15	Field Fortifications.
FM 5–20	Camouflage Basic Principles and Field Camouflage.
FM 5–21	Camouflage of Fixed Installations.
FM 5–22	Camouflage Materials.
FM 5–23	Field Decoy Installations.
FM 5–25	Explosives and Demolitions.
FM 5–26	Employment of Atomic Demolition Munitions (ADM).
FM 5–30	Engineer Intelligence.
FM 5–34	Engineer Field Data.
FM 5–35	Engineers' Reference and Logistical Data.
FM 5–36	Route Reconnaissance and Classification.
FM 5–142	Nondivisional Engineer Combat Units.
FM 7–11	Rifle Company, Infantry, Airborne, and Mechanized.
FM 7–20	Infantry, Airborne Infantry and Mechanized Infantry Battalions.
FM 8–16	Medical Service Field Army.

FM 9–1	Ordnance Service in the Field.
FM 9–2	Ordnance Corps Logistical Data.
FM 9–6	Ammunition Service in the Theater of Operations.
FM 11–8	Field Radio Relay Techniques.
FM 16–5	The Chaplain.
FM 17–1	Armor Operations.
FM 17–15	Tank Units, Platoon, Company and Battalion.
FM 19–2	Military Police Support in the Field Army.
FM 19–25	Military Police Traffic Control.
FM 19–40	Enemy Prisoners of War and Civilian Internees.
FM 20–32	Landmine Warfare.
FM 20–33	Combat Flame Operations.
FM 21–5	Military Training Management.
FM 21–6	Techniques of Military Instruction.
FM 21–26	Map Reading.
FM 21–30	Military Symbols.
FM 21–31	Topographic Symbols.
FM 21–40	Small Unit Procedures in Chemical, Biological and Radiological (CBR) Operations.
FM 21–41	Soldier's Handbook for Chemical and Biological Operations and Nuclear Warfare.
FM 21–60	Visual Signals.
FM 21–77	Evasion and Escape.
FM 23–12	Technique of Fire of the Rifle Squad and Tactical Application.
FM 24–1	Tactical Communications Doctrine.
FM 24–16	Signal Orders, Records and Reports.
FM 24–17	Tactical Communications Center Operations.
FM 24–18	Field Radio Techniques.
FM 24–20	Field Wire, Field Cable Techniques.
FM 29–10	Supply Management in the Field Army.
FM 29–22	Maintenance Operations in the Field Army.
FM 29–45	General Support Supply and Service in the Field Army.
FM 31–10	Barriers and Denial Operations.
FM 31–11	Doctrine for Amphibious Operations.
FM 31–12	Army Forces in Amphibious Operations (The Army Landing Force).
FM 31–16	Counterguerrilla Operations.
FM 31–21	Special Forces Operations.
(S)FM 31–21A	Special Forces Operations (U).
FM 31–22	U.S. Army Counterinsurgency Forces.
(S)FM 31–22A	U.S. Army Counterinsurgency Forces (U).
FM 31–25	Desert Operations.
FM 31–30	Jungle Training and Operations.
FM 31–50	Combat in Fortified and Built-Up Areas.
FM 31–60	River Crossing Operations.
FM 31–70	Basic Cold Weather Manual.
FM 31–71	Northern Operations.
FM 31–72	Mountain Operations.
FM 31–73	Advisor Handbook for Counterinsurgency.
FM 33–1	Psychological Operations—U.S. Army Doctrine.
FM 41–5	Joint Manual of Civil Affairs/Military Government.
FM 41–10	Civil Affairs Operations.

FM 54–3	The Field Army Support Command.
FM 54–4	The Support Brigade.
FM 55–52	Transportation Terminal Battalion and Terminal Service Company.
FM 55–53	Transportation Amphibious Truck Company.
FM 55–58	Transportation Boat Operations.
FM 60–30	Embarkation and Loading—Amphibious.
FM 61–100	The Division.
FM 100–5	Field Service Regulations—Operations.
FM 100–10	Field Service Regulations, Administration.
(C) FM 100–20	Field Service Regulations—Counterinsurgency (U).
FM 101–5	Staff Officers Field Manual; Staff Organization and Procedure.
FM 101–10–1	Staff Officers Field Manual, Organization, Technical, and Logistical Data Unclassified Data.
FM 110–101	Intelligence: Joint Landing Force Manual.

A–4. Technical Manuals (TM)

TM 3–210	Fallout Prediction.
TM 3–220	Chemical, Biological, and Radiological (CBR) Decontamination.
TM 5–220	Passage of Obstacles Other Than Minefields.
TM 5–248	Foreign Maps.
TM 5–311	Military Protective Construction (Nuclear Warfare and Chemical and Biological Operations).
TM 5–343	Military Petroleum Pipeline Systems.
TM 5–360	Port Construction and Rehabilitation.
TM 5–700	Field Water Supply.
TM 5–725	Rigging.
TM 8–525	Sanitary Food Service.
TM 9–500	Ordnance Corps Equipment Data Sheets.
TM 9–1900	Ammunition, General.
TM 9–1910	Military Explosives.
TM 10–1109	Military Petroleum Pipeline System, Maintenance (QM Corps).
TM 10–1110	Military Petroleum Pipeline System, Terminals.
TM 10–1111	Military Petroleum Pipeline System, Pump Stations.
TM 21–300	Driver Selection and Training (Wheeled Vehicles).
TM 38–750	The Army Equipment Record System and Procedures.
TM 55–510	Amphibious Lighter Operator's Handbook.

A–5. Tables of Organization and Equipment (TOE)

TOE 5–401	Headquarters and Headquarters Company, Engineer Amphibious Brigade.
TOE 5–402	Headquarters and Headquarters Company, Engineer Amphibious Group.
TOE 5–405	Engineer Amphibious Battalion.
TOE 5–406	Headquarters and Headquarters Company, Engineer Amphibious Battalion.
TOE 5–407	Engineer Amphibian Assault Company.
TOE 5–408	Engineer Amphibious Company.

A–6. Other References

ATP 5–401	Engineer Amphibious Units.
ATT 5–401	Engineer Amphibious Units.
TC 3–15	Prediction of Fallout from Atomic Demolition Munitions (ADM).
JCS Pub 1	Dictionary of U.S. Military Terms for Joint Usage (JD).
JCS Pub 2	Unified Action Armed Forces (UNAAF).

APPENDIX B

LVTP5

B–1. LVTP5 Characteristics

This vehicle is identified as the Landing Vehicle, Tracked, Personnel, Model 5 (LVTP5). It can be employed to transport troops, equipment, and cargo from ship-to-shore and to inland points, as required. The vehicle operates on land or in water without modification.

a. Length, overall (including rear tow hitch) ..... 29 ft. 8 in.
b. Width, overall ..... 11 ft. 8½ in.
c. Height:
(1) Without machinegun and superstructure handrail ..... 8 ft. 7½ in.
(2) With machinegun, cupola mount .. 10 ft. ½ in.
d. Crew 3

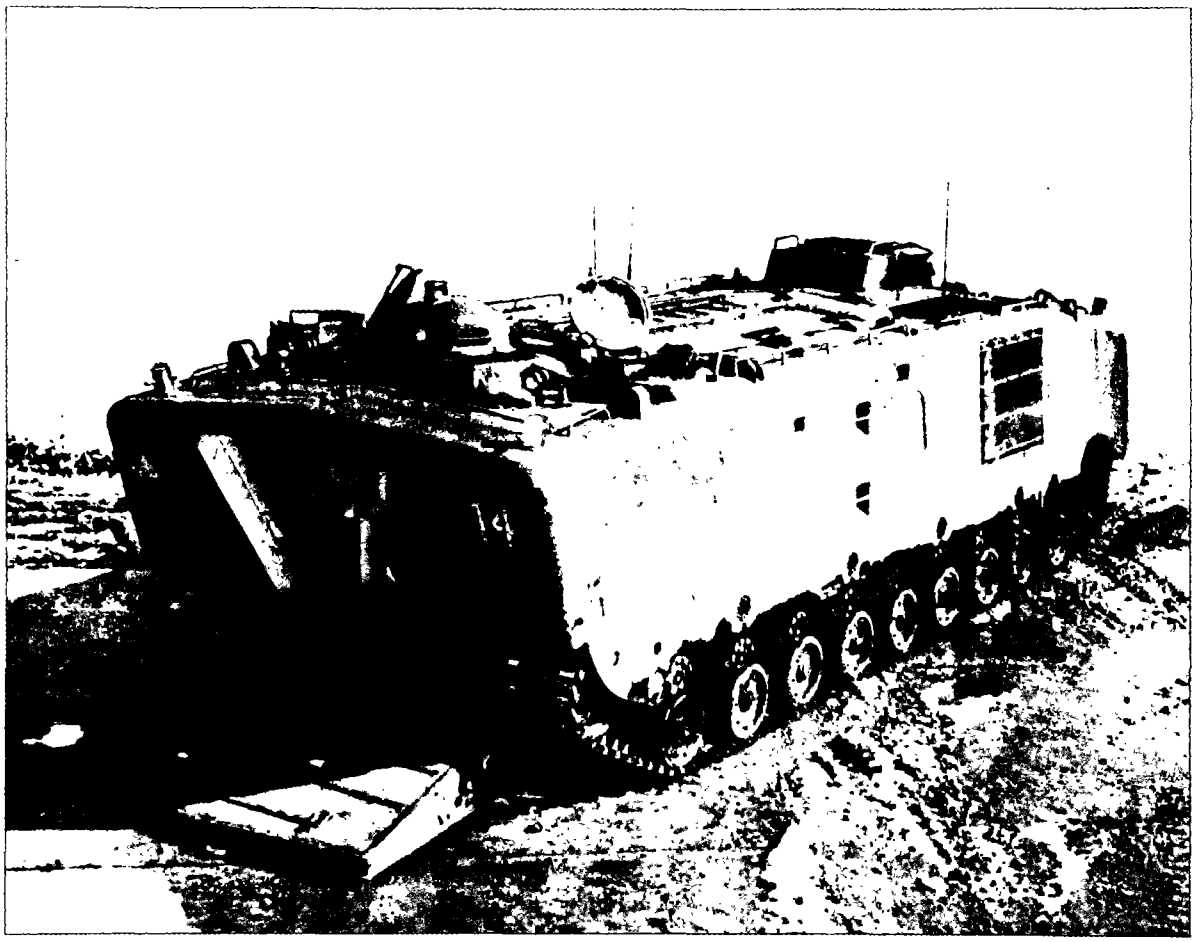


Figure B–1. The landing vehicle, tracked, personnel, model 5 (LVTP5).

e. Passenger capacities:
(1) Optimum troop load water and land 25
(2) Maximum troop load water and land 34
(3) When rigged as an ambulance 12
f. Cargo capacities:
(1) Combat load (maximum for waterborne operations) ..... 12,000 lbs.
(2) Combat load (maximum load for land operations only) ..... 18,000 lbs.
g. Weight:
(1) Combat loaded water ..... 81,780 lbs.
(2) Combat loaded land ..... 87,780 lbs.
h. Ground clearance, combat loaded:
(1) Center of hull to base of track ... 18 in.
(2) To lowest point of hull ..... 11 in.
i. Deck loading and ground pressure:
(1) Combat loaded (for waterborne operations—12,000 lbs.) ..... 8.59 psi
(2) Maximum (for land operations—18,000 lbs.) ..... 9.22 psi
(3) Combat equipped without load ... 7.33 psi
j. Grade ascending ability:
(1) Forward slope, combat loaded 70%
(2) Side slope, combat loaded 60%
k. Obstacle ability:
(1) Solid vertical wall, combat loaded 3 ft.
(2) Trench span (logs, concrete, rocks) ..... 12 ft.
(3) Trench span (soft trench dirt) .... 10 ft.
l. Speed:
(1) Maximum land forward ..... 30 mph
(2) Maximum water forward ..... 6.8 mph
(3) Maximum land reverse ..... 8 mph
(4) Maximum water reverse ..... 2 mph
(5) Cruising, land ..... 20 mph
(6) Cruising, water ..... 6 mph
m. Cruising range at 2,400 rpm:
(1) Land—190 miles ..... 20 mph
(2) Water—57 miles ..... 6 mph
n. Engine—Continental (liquid cooled).. 810 hp., V–12
o. Fuel capacity, 456 gallons. Fuel consumption at cruising speed (2,400 rpm) is as follows:
(1) Land (gallons per mile) 2.4
(2) Water (gallons per hour) 47
p. Fuel (gasoline) ..... 80 octane
q. Armament:
(1) Machinegun, cal. .30, (pivot mounted in turret) 1
(2) Mount, tripod, machinegun, cal. .30, (in OEM) 1
r. Ammunition—cal. .30 ..... 2,000 rds.
s. Ramp:
(1) Width of opening ..... 7 ft. 3½ in.
(2) Height of opening:
(*a*) Vertical at center ..... 4 ft. 6¼ in.
(*b*) Vertical at sides ..... 4 ft. 2½ in.
(3) Minimum clearance ..... 5 ft. 0 in.
(4) Maximum clearance ..... 5 ft. 4 in.
(5) Operation ..... Hydraulic
t. Cargo compartment:
(1) Width of cargo opening in top deck ..... 7 ft.
(2) Length of cargo opening in top deck ..... 8 ft.
(3) Height (minimum) ..... 5 ft. 6 in.
(4) Width (minimum) ..... 7 ft. 3 in.

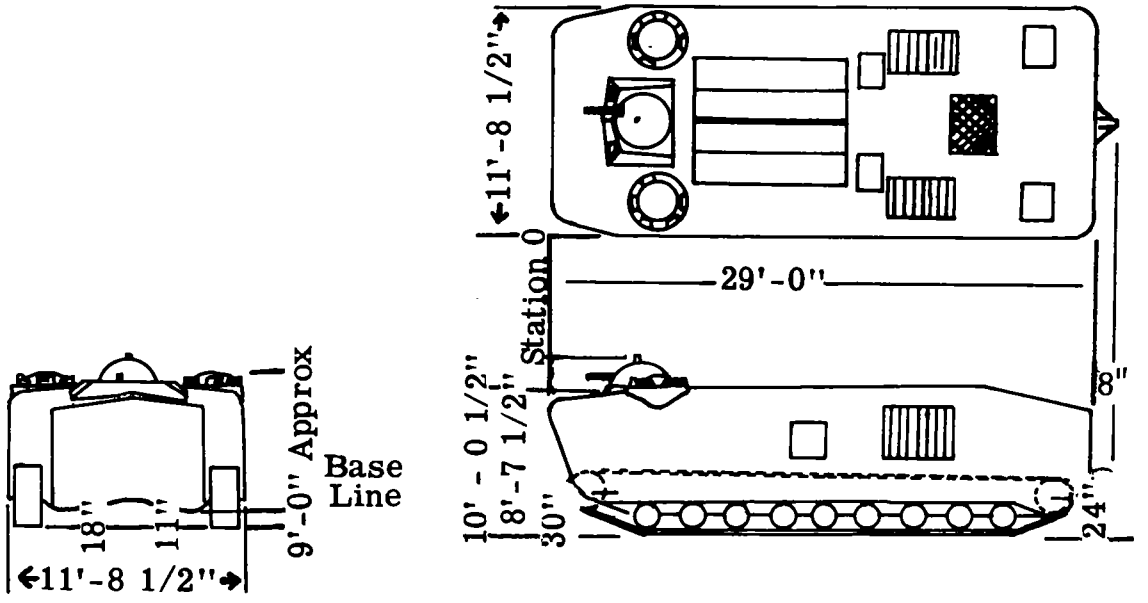


Figure B–2. Dimensions of the LVTP5.

u. Length:
(1) Engine bulkhead to ramp base ...15 ft. 0 in.
(2) Engine bulkhead to rear of driver's seat .....11 ft. 5 in.

v. Towing facilities:
(1) Center of bow below ramp .....one towing eye
(2) Base of stern sheet .....one quick release hitch
(3) On stern sheet .....one wire tow rope

w. Cubic feet:
(1) Engine bulkhead to rear of driver's seat 458.8
(2) Engine bulkhead to ramp base ...598.5

x. Radios: see appendix N.

B–2. Typical LVTP5 Cargo Loads

a. Waterborne (Maximum Weight: 12,000 lbs.—Cu. Ft.: 458).

Type	*Amount*	*Cu. Ft.*	*Weight*
Rations "C"	475 Cases	374	11,835
POL (Oil)	25 Drums	300	11,425
Small Arms:			
30 Cal. Ammo M–1	200 Cases	128	11,800
30 Cal. MG	135 Cases	126	11,880
7.62-mm Ammo 840 Rds Clip	200 Cases	170	10,000
7.62-mm Ammo 800 Rds Link	150 Cases	137	11,250
45 Cal.	100 Cases	90	11,300
81-mm Mortar:			
Ctg HE M362 w/Fuze PD	224 Cases	298	11,984
Ctg HE M43A1 w/Fuze PD	240 Cases	319	12,000
Ctg Smoke WP M57 w/Fuze PD	266 Cases	277	11,970
Ctg WP M57A1 w/Fuze TS–M77	285 Cases	302	11,970
Ctg Illum, M301A1 w/Fuze Time M84	201 Cases	288	11,980
Howitzer 105-mm:			
Ctg HE–M444 w/Fuze M548	100 Cases	203	12,000
Ctg Smk M60 w/Fuze PDM501A1	100 Cases	203	12,000
Rifle, Multi, 106 SB (ONTOS):			
Ctg Heat, M344A1 w/Fuze PI–BD	99 Cases	270	11,979
Ctg Hep–T M346A1 w/Fuze BD, M91A1	99 Cases	270	11,979
Ctg, Spotter Tracer M–48	171 Cases	154	11,970
120-mm M103:			
Proj HE–T M356 w/Prop Chg w/Fuze PDM 51A5	73 Cases	280	11,899
Ctg, Illum M335 w/Fuze MTS M501A1	100 Cases	181	12,000
Gun, 155-mm M2:			
Proj Illum M118A2 w/o Fuze	14 Cases	97	12,068
Tank 90-mm Gun M–48A1:			
Ctg HE M71 w/Sup Chg w/Fuze PD M51A5	90 Cases	237	11,880
Howitzer 155 M–1:			
Proj Illum M118A2 w/o Fuze	13 Cases	97	12,068
Howitzer 8" M55 (SP):			
Proj HE M106 (w/Sup Chg w/o Fuze)	18 Cases	109	11,394
Grenade, Hand:			
Grenade Frag Hand	235 Cases	341	11,985
Adapter, Grenade, Proj, M1 & M1A1	157 Cases	457	7,693

b. Land Operations (Maximum Weight: 18,000 lbs.—Cu. Ft.: 458).

Type	*Amount*	*Cu. Ft.*	*Weight*
Rations "C"	550 Cases	434	13,750
POL (Oil)	36 Drums	432	16,452
Small Arms:			
30 Cal. Ammo M–1	300 Cases	300	17,700
30 Cal. MG	200 Cases	186	17,600
7.62-mm Ammo 840 Rds Clip	265 Cases	239	18,020

Type	*Amount*	*Cu. Ft.*	*Weight*
7.62-mm Ammo 800 Rds Link	240 Cases	218	18,000
45 Cal.	155 Cases	139	17,515
81-mm Mortar:			
Ctg HE M43A1 w/Fuze PD M51A5	344 Cases	358	17,200
Ctg Smoke WP M52 w/Fuze PD	399 Cases	398	17,995
Ctg Wp M57A1 w/Fuze TS–M77	428 Cases	436	17,976
Ctg Illum M301A1 w/Fuze Time M84	300 Cases	429	17,880
Howitzer 105-mm:			
Ctg HE–M444 w/Fuze M548	150 Boxes	305	18,000
Ctg Smk, M60 w/Fuze PDM51A4	150 Boxes	305	18,000
Rifle Multi, 106-mm SP (ONTOS):			
Ctg Heat M344A1 w/Fuze PI–BD M509	148 Cases	402	17,908
Ctg Hep–T M346A1 w/Fuze BD	148 Cases	402	17,908
Ctg Spotter Tracer M–48	257 Cases	231	17,990
120-mm Gun M103:			
Proj HE–T M356 w/Prop Chg	110 Cases	422	17,930
Ctg Illum, M335 w/Fuze MTSQ M501A1	150 Cases	303	18,000
Gun 155-mm M2:			
Proj Illum M118A2	21 Cases	145	18,102
Tank 90-mm Gun M–48A1:			
Ctg HE M71 w/Sup Chg w/Fuze PD M51A5	136 Cases	361	17,952
Howitzer 155 M–1:			
Proj Illum M118A2 w/o Fuze	21 Cases	145	18,102
Howitzer 8" M55 (SP):			
Proj HE M106 w/Sup Chg w/o Fuze	27 Cases	164	17,091
Grenade, Hand:			
Grenade Hand Frag	353 Cases	457	18,003
Adapter, Grenade Proj M1 & M1A	157 Boxes	457	7,693

B–3. Typical Equipment/Crew Loads for the LVTP5

Type	*Weight*	**Sq. Ft.*	*Additional Troop Space*
Infantry Light Weapons Carrier (Mechanical Mule):			
w/Driver	1,124 lbs	43	**18 Men
w/Payload	1,000 lbs		
Infantry Light Weapons Carrier w/106, Crew and Driver	2,083 lbs	45	14 Men
Truck ¼ T M38A1, (Jeep) w/Driver	2,924 lbs	65	12 Men
Trailer ¼ T M100	565 lbs	44	18 Men
Jeep w/Trailer and Driver	3,473 lbs	108	0 Men
Truck ¾ T M37 w/Driver	6,141 lbs	97	0 Men
Truck, Utility, Lt Wt, M–422 w/Driver	1,899 lbs	49	16 Men
Truck, Utility, Lt Wt, M–422 w/Trailer and Driver	2,449 lbs	93	4 Men
Two Mortars, 81-MM, M29	214 lbs	18	2 Five-man mortar squads
Howitzer, 105-MM, Towed	4,980 lbs	***90	10-man gun crew

* Capacity of LVT in square feet—108.
** One combat equipped soldier—224 lbs.
*** Approximation.

APPENDIX C

LVTC

C–1. LVTC Description

This vehicle is identified as the Landing Vehicle, Tracked, Command, Model 5, (LVTC). It can be employed as a mobile command post, fire support coordination center, or observation post. It is identical to the LVTP5 except for the modified cargo compartment, which accommodates additional communication equipment, desk space, chairs, and map boards.

C–2. LVTC Characteristics

The LVTC vehicle has characteristics which are identical to those of the conventional LVTP5 described in appendix B except as set forth below:

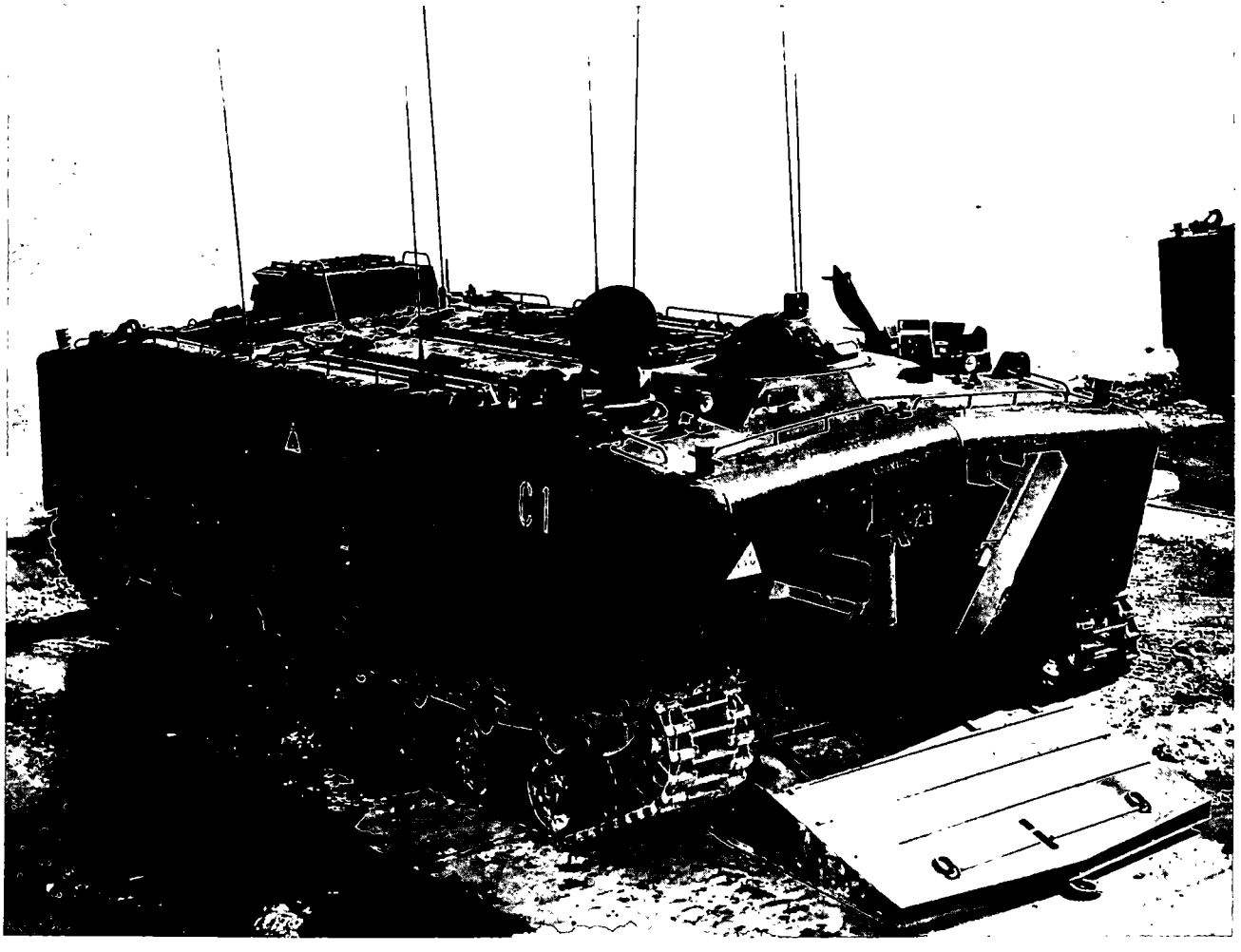


Figure C–1. The landing vehicle, tracked, command (LVTC).

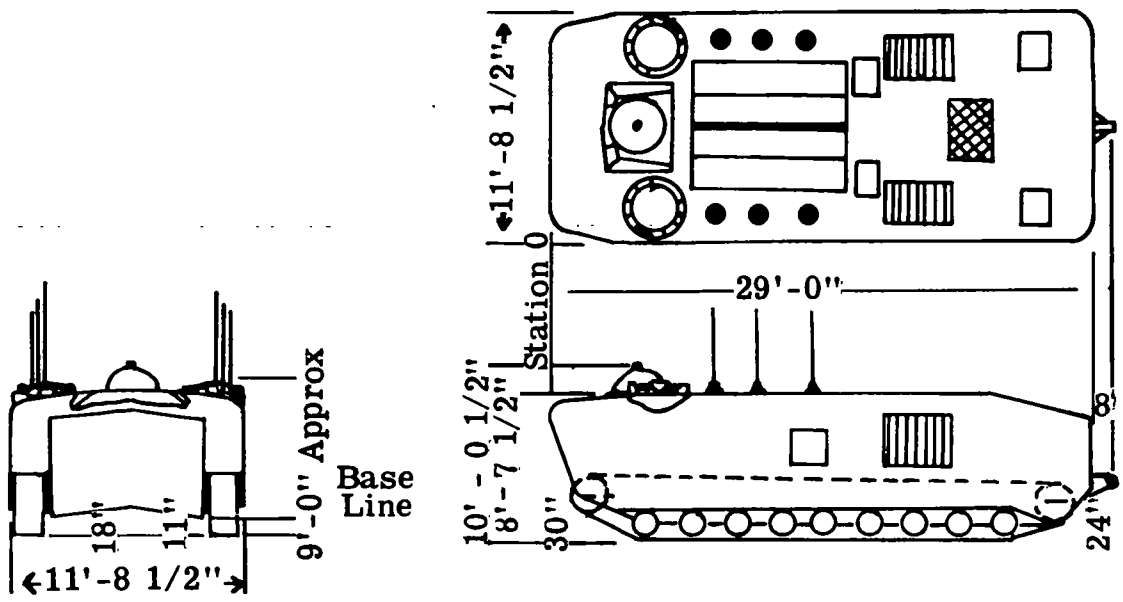


Figure C–2. Dimensions of the LVTC.

a. Passenger capacities (maximum land and water) 12

b. Cargo capacity (designed as a communication vehicle and does not normally transport cargo).

c. Weight:

(1) Bare weight .....64,200 lbs.

(2) Combat equipped with crew, OEM, fuel, and lubricants .....74,460 lbs.

d. Radios: see appendix N.

APPENDIX D

LVTE

D–1. LVTE Description

This vehicle is identified as the Landing Vehicle, Tracked, Engineer (LVTE). It can be employed to breach minefields and clear obstacles during amphibious operations and during river crossings.

D–2. LVTE Characteristics

a. Length, overall (including rear tow hitch) ..... 39 ft. 9¼ in.
b. Width, overall:
  (1) Blade wings folded ..... 12 ft. 8⅞ in.
  (2) Blade wings extended ..... 18 ft. 9¼ in.
c. Height, overall ..... 10 ft. 8½ in.
d. Crew:
  (1) Not including engineer component..3
  (2) With engineer augmentation 7
e. Cargo ..... NONE
f. Weight:
  (1) Combat loaded ..... 97,500 lbs.
  (2) Less crew, stowage, and fuel ..... 82,750 lbs.

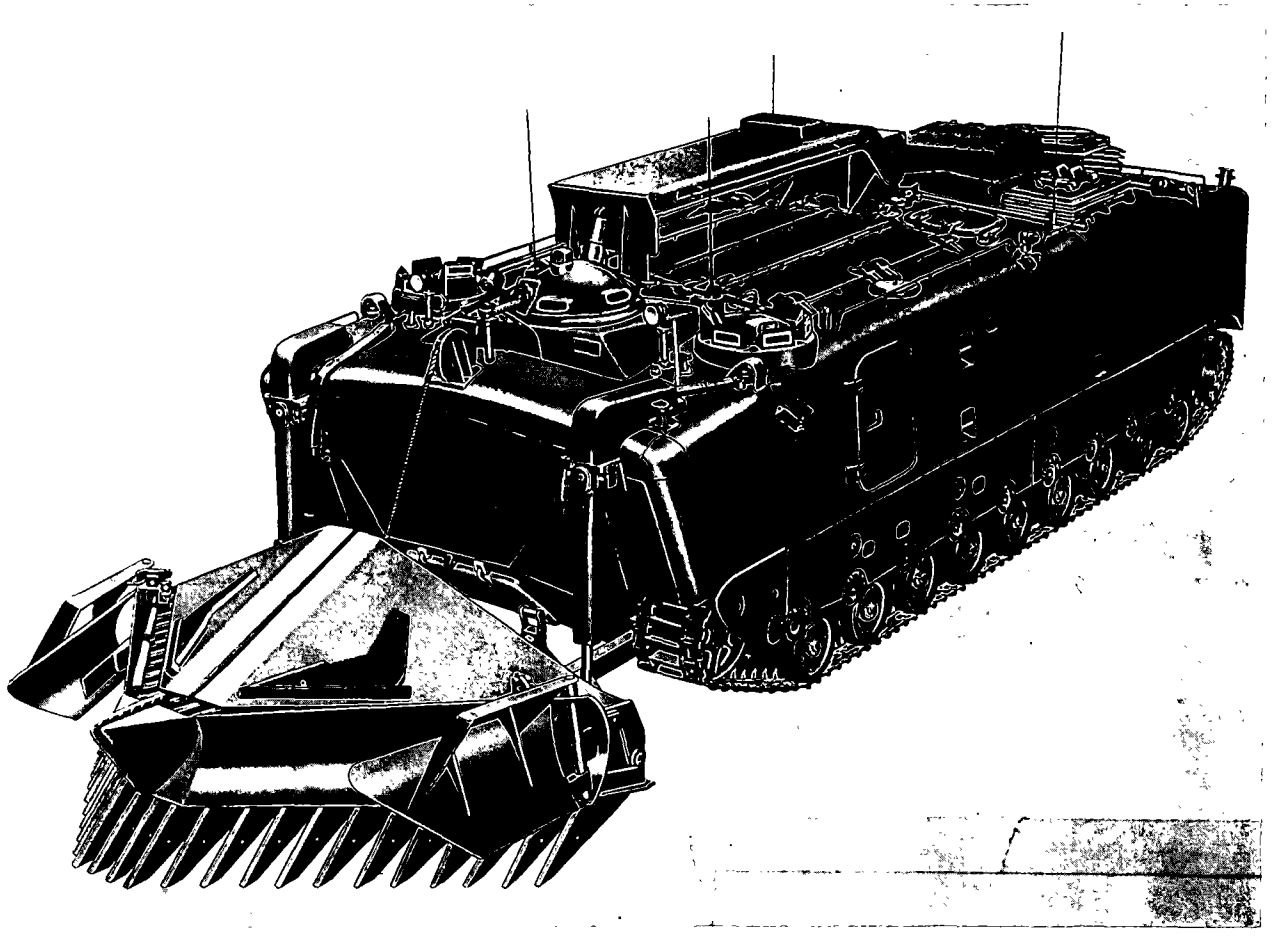


Figure D–1. The landing vehicle, tracked, engineer (LVTE).

g. Ground clearance:
(1) Forward .....14⅞ in.
(2) Aft .....19¼ in.
(3) Lowest point of hull .....11$\frac{1}{16}$ in.

h. Ground pressure (2 inches penetration and 97,500 lbs. weight) .....9.5 psi

i. Grade ascending ability:
(1) Forward slope 60%
(2) Side slope 60%

j. Obstacle ability:
(1) Maximum wall .....21 in.
(2) Trench span .....10 ft.

k. Speed:
(1) Maximum land forward .....24.9 mph
(2) Maximum water forward .....6.2 mph
(3) Maximum land reverse .....8.2 mph
(4) Maximum water reverse .....2 mph

l. Engine—Continental (fuel injection system) (gasoline) .....810 hp., V–12

m. Fuel capacity, 560 gallons. Fuel consumption at cruising speed (2,400 rpm) is as follows:
(1) Land (gallons per hour) 35
(2) Water (gallons per hour) 53.3

n. Fuel (gasoline) .....80 octane

o. Armament:
(1) Machinegun, cal. .30, (pivot mounted in turret) 1
(2) Mount, tripod, machinegun, cal. .30, (in OEM) 1

p. Line charge—350 feet in length 2

q. Towing facilities:
(1) Front of vehicle (center of bow below escape hatch) .....one towing eye
(2) Base of stern sheet .....one quick release hitch
(3) On stern sheet .....one wire tow rope

r. Ammunition—cal. .30 .....2,000 rds.

s. Radios: see appendix N.

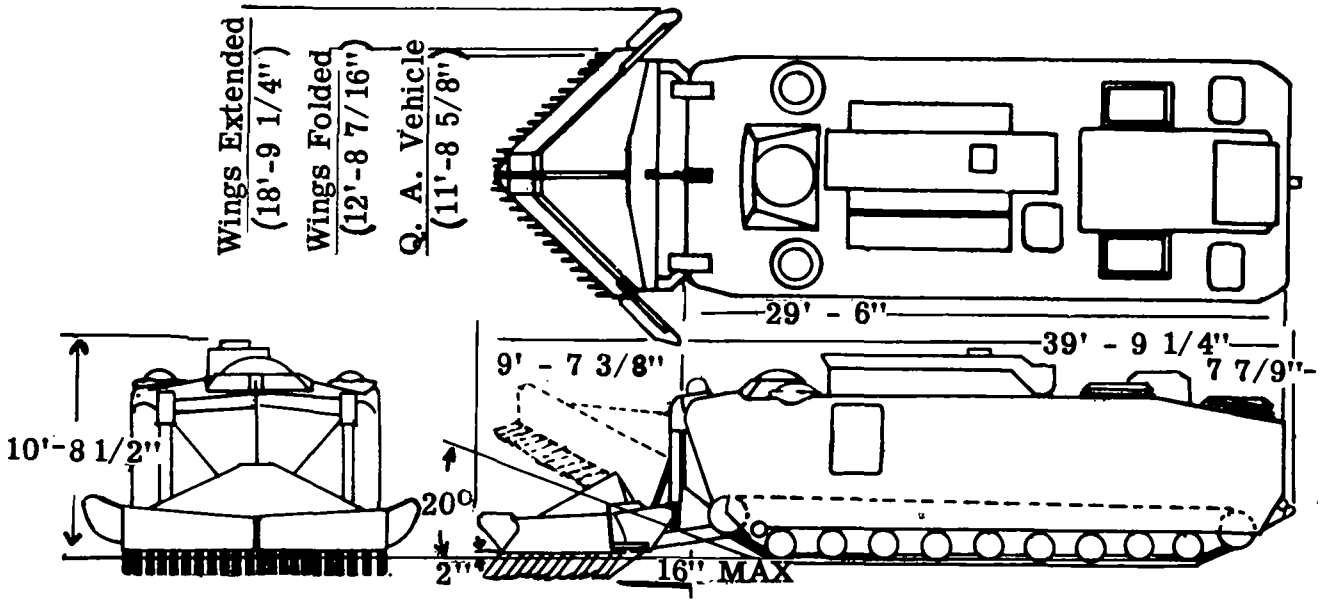


Figure D–2. Dimensions of the LVTE.

APPENDIX E

LVTR

E–1. LVTR Description

This vehicle is identified as the Landing Vehicle, Tracked, Recovery, Model 1 (LVTR). It can be employed for the repair and/or retrieval of other amphibious vehicles during the conduct of amphibious or land operations.

E–2. LVTR Characteristics

a. Length, overall ..... 31 ft. 9 in.
b. Width, overall ..... 11 ft. 8½ in.
c. Height:
(1) King post stowed ..... 10 ft. 9 in.
(2) King post erected ..... 17 ft. 6 in.
(3) Maximum crane elevation at 65° .. 21 ft. 8 in.
d. Crew 3
e. Cargo ..... NONE
f. Weight:
(1) Less crew, stowage, and fuel ..... 75,020 lbs.
(2) Combat loaded ..... 82,200 lbs.
g. Ground clearance, combat loaded:
(1) Center of hull to base of track ... 18 in.
(2) To lowest point of hull ..... 11 in.
h. Deck loading and ground pressure, at 0 inches penetration ..... 8.65 psi
i. Grade ascending ability:
(1) Forward slope, combat loaded 70%
(2) Side slope, combat loaded 60%
j. Obstacle ability:
(1) Solid vertical wall ..... 3 ft.
(2) Trench span ..... 12 ft.

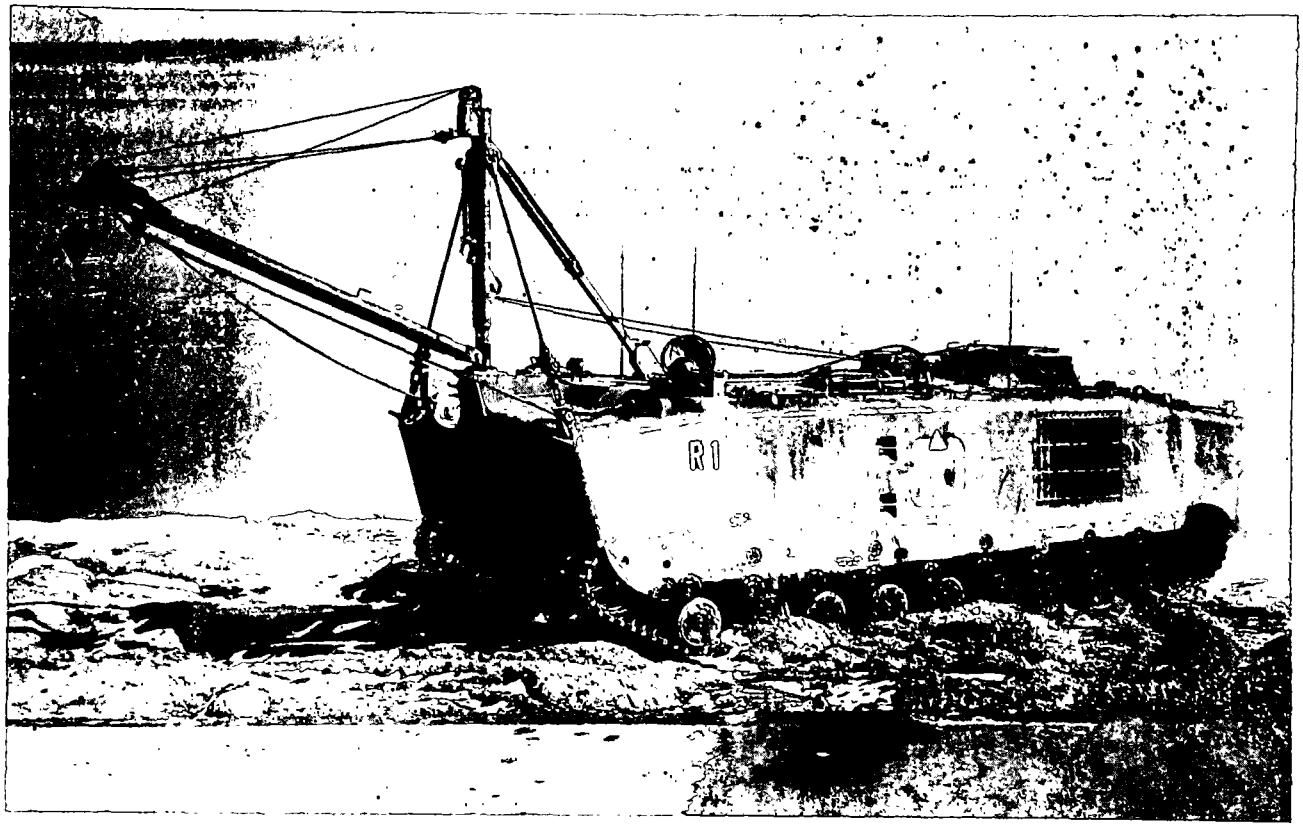


Figure E–1. The landing vehicle, tracked, recovery (LVTR).

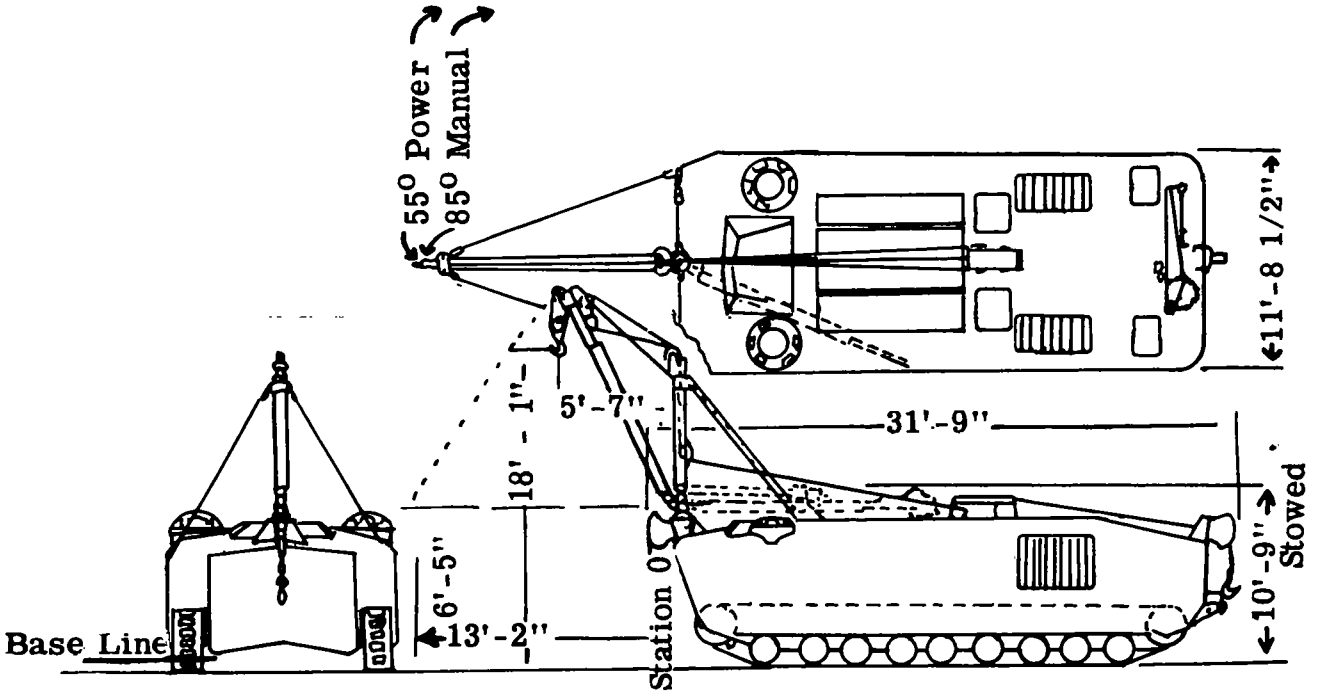


Figure E–2. Dimensions of the LVTR.

k. Speed:
- (1) Maximum land forward .....30 mph
- (2) Maximum water forward .....6.8 mph
- (3) Maximum land reverse .....8 mph
- (4) Maximum water reverse .....2 mph

l. Cruising range at 2,400 rpm:
- (1) Land at 20 mph .....190 miles
- (2) Water at 6 mph .....57 miles

m. Engine—Continental (liquid cooled)..810 hp., V–12

n. Fuel capacity, 456 gallons. Fuel consumption at cruising speed (2,400 rpm) is as follows:
- (1) Land (gallons per mile) 2.4
- (2) Water (gallons per hour) 47

o. Fuel, gasoline .....80 octane

p. Armament:
- (1) Machinegun, cal. .30 1
- (2) Mount, tripod, machinegun, cal. .30 (in OEM) 1

q. Ammunition—cal. .30 .....1,000 rds.

r. Radios: see appendix N.

s. Equipped for organic maintenance:
- (1) Power skid—M38A1 Willys engine.1
- (2) Welder—GE WD43B7 300 amp ..1
- (3) Generator—Onan Model 5UA–IN/40A 5kw–115 volt 1
- (4) Crane winch—Garwood—(single drum) 1
- (5) Retrieving winch—Pacific Car—(single drum) 1
- (6) Air compressor, 2 cyl. reciprocating piston type 2
- (7) Maximum boom reach:
  - (*a*) At horizontal .....11 ft. 9 in.
  - (*b*) At 45° .....8 ft. 3 in.
- (8) Maximum boom lift:
  - (*a*) At horizontal .....6 ft. 5 in.
  - (*b*) At 45° .....15 ft. 7 in.
- (9) Maximum boom traverse (manual) .....85° right or left
- (10) Maximum lift .....7,000 lbs.
- (11) Maximum winch capacity (single line pull) .....45,000 lbs.

APPENDIX F

TRAINING AND SAFETY FOR ENGINEER AMPHIBIAN ASSAULT COMPANIES

Section I. TRAINING OF ENGINEER AMPHIBIAN ASSAULT COMPANIES

F–1. General

The training objectives of the engineer amphibian assault companies, engineer amphibious battalion, in general military subjects and technical amphibious vehicle training are established in accordance with orders of higher headquarters and their own requirements. Formal schools and classroom work as well as field training are necessary elements of a sound engineer amphibian assault company training program. Field work includes water and land vehicular operation, maintenance of the vehicles, firing of organic weapons, and actual participation in amphibious operations. Supervision at all levels is essential to the conduct of a well-planned, thorough training program. Supervision is accomplished by inspection, testing, and review. Training programs are designed to effect orderly progress from individual to section, platoon, company, and, where applicable, battalion training phases. Constant refresher training is conducted for all officer and enlisted personnel of the engineer amphibian assault companies.

F–2. Training Objectives

Obtaining maximum unit proficiency in all phases of amphibious vehicle employment in combat is the training objective of engineer amphibian assault units. In order to achieve this state of training, all personnel are adequately trained in their unit specialty and in general military subjects. The individual maintains his proficiency as a soldier, while progressing from basic to advanced training in his specialty.

a. Specialist Training Objective. The objective of specialist training is to give amphibious vehicle personnel training to qualify and maintain their proficiency in assigned military occupational specialties, and to fully qualify each individual in his assignment in the amphibian assault company. Full qualification in an MOS required by the TOEs of engineer amphibious units can only be attained by actual performance of duty in that specialty.

b. General Military Subjects Training. The object of the unit's general military subjects training program is to maintain the individual's proficiency as a soldier, enabling him to accept varied assignments in combat.

F–3. The Training Program

The training program for an engineer amphibian assault company depends upon the combat readiness of the command, the level of knowledge and proficiency of personnel assigned to the unit, training facilities available, and the requirements of higher headquarters. Training of the unit comes basically under two main headings, training as an LVT unit and training the LVT unit with infantry or other combat arms which it is to support. A training program balanced between these requirements will produce a proficient unit. Random instruction is not given for the sake of fulfilling the training requirement. All instruction included on the master training schedule is carefully analyzed for its value and contribution to the efficiency and state of training of the unit. Overall training requirements are frequently determined by higher headquarters, and unit training programs are formulated from these guidelines. Unit commanders and their operations officers modify training programs to insure optimum use of facilities and to facilitate the attainment of new requirements initiated by higher headquarters or created by a new situation.

a. Methods of Instruction. The principles set forth in FM 21–6 should be followed in the conduct of military training. Emphasis is placed on practical application rather than on theoretical instruction. Inclement weather schedules are prepared in advance to cover scheduled periods which are subject to cancellation because of inclement weather or hazardous operating conditions. Proficiency is attained through integrated and concurrent training. Once a subject has been introduced, it is applied at every subsequent opportunity until mastered.

(1) *Integrated training.* Integrated training is that training where two or more subjects are taught simultaneously; for example, amphibious vehicle crew emergency procedures may be taught during water driving instructions.

(2) *Concurrent training.* Concurrent training is that training conducted simultaneously with other subjects when permitted by the scheduling of a principal subject; for example, weapons firing, communication instruction, and unit camouflage instruction may be conducted during a field exercise involving establishment of amphibian assault companies ashore.

b. Commander's Time. Commander's time in training programs is intended to provide latitude in the scheduled training. It may be used to compensate for interruptions, to bring individuals up to desired levels of proficiency, to conduct refresher training, or to introduce essential training not previously planned.

c. Selection of Instructors. Maximum advantage is taken of known skills possessed by individuals of the unit in assigning instructors. Careful selection of instructors is made to insure control of personnel and that instruction is properly imparted. Graduates of specialist schools, particularly in maintenance and communications, are used to conduct instruction in these subjects. Assignment of qualified lower grade personnel to conduct instruction is advisable; it serves as an incentive and also takes advantage of their skill.

d. Safety and Realism. The conduct of training operations by engineer amphibious units and safety precautions incident thereto are governed by appropriate training manuals and this manual. The objective of amphibious vehicle training is the attainment of maximum realism without sacrificing essential safety precautions.

e. Training Officers and NCO's. At the discretion of unit commanders, officers not required in the conduct of training of the unit may be given officer-level instruction. Noncommissioned officers are included in the officer-level instruction when desirable. Training programs set forth those subjects necessary for proper and proficient performance by officers and NCO's of the command.

f. Unit Training Phase. The commanding officer, through careful and continuing analysis of the training status of the unit and its members, regulates the progress from individual to section training and throughout advanced training stages. He determines the progress of training from basic level to advanced level in order to insure adequate training in both phases of the program.

g. Field and Waterborne Training. Engineer amphibian assault companies train in the field under simulated tactical conditions whenever possible. Particular attention is given during field training to subjects such as overland driving, field preventive maintenance, unit control, camouflage, dispersion of vehicles, and formation driving. Individual and unit measures taken during both antinuclear and nuclear warfare are stressed, as are unit defensive measures against organized and guerrilla type forces. Waterborne training for engineer amphibian assault companies may be conducted as a part of field exercises, or may be scheduled separately. During waterborne training, such subjects as formation driving, vehicle control, emergency procedures, including maintenance while waterborne, are stressed. It is important that engineer amphibian assault companies make every effort to train in ocean areas, lakes, rivers, streams, swamps, and any other type of water areas available in order to gain diversified experience.

h. Night Training. Training of engineer amphibian assault companies at night is essential to the combat readiness of the command. Darkness introduces increased problems of control and coordination, and proficiency under such conditions is only attained by actual operation. Emphasis is placed on individual initiative during night training. This training includes afloat and ashore oper-

ations, and should include landing ship training when ships are available.

i. Amphibious Exercises. The mission of the engineer amphibious battalions and their amphibian assault companies makes mandatory the conduct of regularly scheduled amphibious exercises under the most diversified conditions possible. Such exercises progress from planning and embarkation through the ship-to-shore movement and subsequent operations ashore, either tactical, combat service support, or both. The more varied the role for the engineer amphibian assault company, the more thorough is the training. Combat service support necessary to support operating engineer amphibian assault companies during these exercises is conducted as realistically as possible in order to determine the ability of the engineer amphibious battalion and its subordinate elements to render support on a combat basis.

j. Tactical Exercises. Tactical exercises are conducted in order to apply tactics and techniques to specific situations under conditions simulating actual combat. The success of tactical exercises is dependent upon the amount of realism afforded. Use of Aggressors contributes substantially to the realism of training. All phases of the unit operation should be tested during tactical exercises, to include administration, supply, communications, and maintenance. Tactical exercises are intended to effect the integration of the components of the engineer amphibious battalion and its companies into effective and coordinated commands, insuring their ability to successfully perform their operational missions.

(1) *Training during exercises.* As many of the training categories listed in (*a*) through (*o*) below should be incorporated in tactical exercises as time and circumstances permit.

(*a*) Communications, including exercise of the radios on board the LVTPC, and the establishing of battalion, company, and platoon command nets, where applicable.
(*b*) Establishing liaison to supported units.
(*c*) Survival, escape, and evasion.
(*d*) Concealment and camouflage of vehicles and individuals.
(*e*) Defense against CBR attacks.
(*f*) Clearance of mines and obstacles, including LVTE employment.
(*g*) Unit action against air, airborne, and mechanized attack, and means of defending against guerrillas and infiltrations.
(*h*) Route reconnaissance, controlling vehicle marches, and vehicle formations.
(*i*) Organizational maintenance in the field.
(*j*) Field messing and sanitation.
(*k*) Collection, emergency medical treatment and mass evacuation of patients in conjunction with medical personnel.
(*l*) Supply procedures to include provision of POL and repair parts.
(*m*) Occupying command posts, tractor parks, and maintenance areas.
(*n*) Vehicle recovery, to include actual employment of the LVTR.
(*o*) Amphibious vehicle driving under all conditions.

(2) *Critique.* A thorough critique is held after each exercise. Insofar as practicable, representatives of all elements of the unit which participate are present at the critique. Emphasis is placed on the purpose of the exercise, good and bad points observed, and methods of correcting deficiencies.

F–4. Training Considerations

a. General. Using the appropriate Army Training Program (ATP) and Army Subject Schedules, each engineer amphibious battalion plans and programs training. In any training planned for the engineer amphibian assault companies the following must be considered:

(1) Training requirements and exercise commitments assigned by higher headquarters.
(2) State of training of the unit and/or its components.
(3) Availability of vehicles considering high maintenance and repair parts requirements.
(4) Requirement for providing basic training for newly acquired personnel.
(5) Availability of shipping and other support activities such as a shore party.
(6) Coordinated training requirements such as higher headquarters training with the

LVTPC and engineer units training with the LVTE.

(7) Requirement for separately training NCO's and officers.

(8) Availability of training areas, to include those closely resembling areas of prospective operations.

(9) Requirement for extensive night training.

(10) Requirement for integrating all facets of the unit into tactical and amphibious exercises.

b. Subjects To Be Included. The following subjects are included in the specialist or technical program of an engineer amphibian assault company in proportion to the training status and requirements of each unit.

(1) *Basic subjects.*

(*a*) On-vehicle instruction on instruments, controls, on-equipment material, and preventative maintenance requirements.

(*b*) Seamanship and elementary navigation.

(*c*) Amphibious vehicle communication equipment and procedures.

(*d*) Weapons training on those weapons organic to the vehicles or issued to personnel.

(*e*) Amphibious vehicle abandonment and immobilizing procedures.

(*f*) Camouflaging vehicles.

(*g*) Embarking on and launching from LST's, LSD's, and LPD's.

(*h*) Amphibious vehicle prewater operational checks and emergency procedures practice.

(*i*) Water, land, and formation driving of amphibious vehicles.

(*j*) Organizational maintenance procedures.

(*k*) Amphibious vehicle cargo loading, trimming, and securing.

(2) *Advanced subjects.*

(*a*) Beach markers, control flags, and numeral flags.

(*b*) Integrated waterborne and aboard ship training with ships of the amphibious fleet.

(*c*) Employment of amphibious vehicle units in the amphibious operation.

(*d*) Amphibious vehicle operations ashore and during river crossings.

(*e*) Amphibious vehicle unit (battalion, company, platoon, section) training and tactical tests.

F–5. Training References

See appendix A of this manual, FM 21–5, FM 21–6, ATP 5–401, and ATT 5–401.

Section II. SAFETY PRECAUTIONS IN AMPHIBIOUS VEHICLE TRAINING OPERATIONS

F–6. General

Amphibious vehicle operations are complicated by inherent vehicular characteristics; i.e., restricted visibility, size and bulk, limited waterborne maneuverability, and a complexity of operations resulting from compromises incident to the manufacture of amphibious type vehicles. Therefore, engineer amphibian assault units and their personnel are required to take exceptional precautions against the dangers of injury, loss of life, and loss of the vehicle. Effective safety precautions require trained and skilled LVT crews, properly oriented passengers, and well maintained vehicles. Strict adherence to the instructions concerning safety precautions for passengers is required.

F–7. Equipment for Crew and Passengers

a. Helmets. All personnel embarked in moving amphibious vehicles should wear helmets. Crewmembers normally wear tank communication helmets while passengers wear the steel helmet.

b. Life Preservers. All personnel wear life preservers at all times during water operations. Amphibious vehicle units provide life preservers for crewmen; embarked units provide their own preservers. Personnel embarked in the amphibious vehicle should wear the inflatable type lifejacket, if available, as exit through escape hatches is difficult if kapok type jackets are worn. Personnel embarked in the LARC–V may wear kapok or inflatable life preservers. In the case of inflatable

types, lifejackets should be worn around the neck while vehicles are waterborne, and not simply contained in the carrying case at the belt.

c. Safety Belts. Safety belts are worn by all seated amphibious vehicle crewmen while the vehicle is in motion over rough terrain, or during landing operations when surf height exceeds six feet.

d. Normal Combat Equipment. All embarked personnel wearing normal combat equipment, such as packs, cartridge belts, pistol belts, etc., loosen such equipment during water operations in order to jettison it without delay if required.

e. Survivor Light. Each passenger embarked on an amphibious vehicle during night operations is equipped with a serviceable survivor light, if available. Embarked units furnish such lights for their personnel; amphibious vehicle units equip their crewmen.

F–8. Requirements for Passengers Embarked in Amphibious Vehicles

The safety of both crew and passengers embarked in amphibious vehicles is enhanced through strict adherence to the following:

a. No person will ride on top of a moving amphibious vehicle, except under the following circumstances:

(1) When performing rescue missions afloat.

(2) During line handling and fending-off operations while laying alongside small craft and ships.

(3) While receiving lines during loading aboard landing ships.

b. No person will ride aboard a moving amphibious vehicle, either ashore or afloat, with more than his head and waist extending above the hatch. During waterborne operations only one hatch should be open for purposes of control and visibility. Waterborne operations in confused seas and trans-surf operations should be conducted with all hatches closed.

c. No smoking is allowed aboard amphibious vehicles at any time.

F–9. Operation of the LVT Ramp

All LVT's are equipped with a hydraulically operated ramp, situated on the bow of the vehicle. All personnel must stand clear of the ramp during the time it is operated. The following precautions apply to raising and lowering the ramp.

a. Hydraulic Operation. Before the ramp is raised or lowered a ground guide is placed in front of the vehicle to insure that all persons stay clear of the ramp area. The driver of the LVT takes his instructions on raising and lowering the ramp from the ground guide. The LVT horn is also sounded prior to the operation of the ramp release lever and during the actual operation.

b. Chain Hoist Operation. When the hydraulic system of the LVT ramp is inoperative, the ramp may be raised or lowered by use of the chain hoist included in vehicle equipment. This operation is more hazardous than with the hydraulic mechanism. The ground guide remains in position until the ramp is secured in the raised position. Vehicles with inoperative ramp hydraulic systems are deadlined with the ramp in a lowered position if space is available, otherwise a sign will be placed both internally and externally indicating DANGER! RAMP HELD BY CHAIN HOIST.

F–10. Emergency Equipment Required for Amphibious Vehicles

a. Installed Equipment. Amphibious tractors are equipped with a horn, a spotlight, and headlights, all of which may be used as signals in the event of emergency. LARC–V's are equipped with headlights and a spotlight which may be used for the same purpose. Periodic inspection of this equipment insures its continuing availability.

b. Special Emergency Equipment. Procedures for signaling during emergencies while amphibious vehicles are waterborne are found in paragraph F–12. As a minimum for night operations, the following equipment should be carried aboard each amphibious vehicle:

(1) One signal lamp.

(2) One aircraft signal projector, pyrotechnic, M9.

(3) Four double-star red signals, AN–M57.

(4) A survivor light for each crewmember.

F–11. Vehicle Abandonment Procedures

The primary principle involved in abandoning amphibious vehicles is strict adherence to the in-

structions of the amphibian commander. He is trained in the conduct of abandonment and has communication with other vehicles and the beach rescue party. Appendix L sets forth duties of the LVT crew in connection with waterborne operations. Appendix K describes the duties of crewmembers when LVT's are disabled or sinking. Procedures set forth below are intended to familiarize embarked personnel with techniques for escaping from disabled, sinking, or sunken vehicles.

a. Procedures When Amphibious Vehicles Are Disabled. When an amphibious vehicle becomes disabled while waterborne, the senior amphibious vehicle officer or NCO afloat in the area is immediately notified by radio or other means as necessary and as outlined by unit SOP. He then takes appropriate action to insure that embarked troops are removed from the disabled vehicle and the vehicle recovered. Transfer from disabled amphibious vehicles is accomplished as outlined below.

(1) In fair weather and in good seas, the safety boat or rescue vehicle comes alongside to leeward and is secured to the disabled vehicle.

(2) The windward cargo hatch is opened and locked in the upright position, and the boarding ladder is installed by the vehicle crew.

(3) Personnel are moved to the top deck in increments and instructed to inflate life preservers, if necessary.

(4) The crew closes the cargo hatch, and personnel are transferred.

(5) In foul weather or rough seas, the rescuing vehicle stands by on the leeward side of the disabled vehicle. Passengers from the disabled vehicle, wearing issued life preservers, swim to the rescuing vehicle in small groups, and are recovered by the crew of that vehicle.

b. Procedure When Amphibious Vehicle Is Sinking. Procedures for escape from tracked vehicles of the LVT type differ from those for the LARC–V's or amphibious truck; thus the two are discussed separately.

(1) *Tracked vehicles.* All vehicles of the LVT series have cargo and personnel compartment hatches which are normally closed during waterborne operations. This feature, in addition to the auxiliary bilge pump which operates off the vehicle electrical system even when the engine is inoperative, makes vehicle sinkings improbable. However, should the vehicle appear to be sinking with passengers embarked, the following procedures are initiated:

(*a*) The crew chief notifies the amphibious vehicle commander or beach rescue party.

(*b*) If time permits and water is not visible forward of the transverse bulkhead, personnel and cargo compartment hatches are opened. If water is evident forward of the transverse bulkhead, only the forward access hatches should be opened (fig. F–1). In both cases, on order of the crew chief, embarked personnel jettison equipment, move topside, inflate lifejackets, and abandon the vehicle.

(*c*) Personnel wearing inflatable type life preservers jettison equipment but DO NOT inflate the preserver until they have passed through the hatch. Personnel wearing kapok type life preservers jettison equipment and hand-carry the life preserver topside, then put on the preserver and abandon the vehicle.

(*d*) The primary principle in escape operations from amphibious vehicles is strict attention to the orders of the vehicle crew chief and maintenance of discipline among passengers, thereby avoiding any possibility of panic.

(2) *The amphibious truck or lighter.* Since there is no cargo hatch on the amphibious truck or lighter, passengers in a vehicle which is sinking leave by climbing or proceeding to the gunwales of the vehicle, inflating life preservers, and abandoning the vehicle. This is done at the discretion of the vehicle crew chief. As in LVT procedures, strict adherence to orders and maintenance of discipline is necessary.

c. Procedure When the LVT Has Sunk. The current series of LVT's are the most seaworthy ever

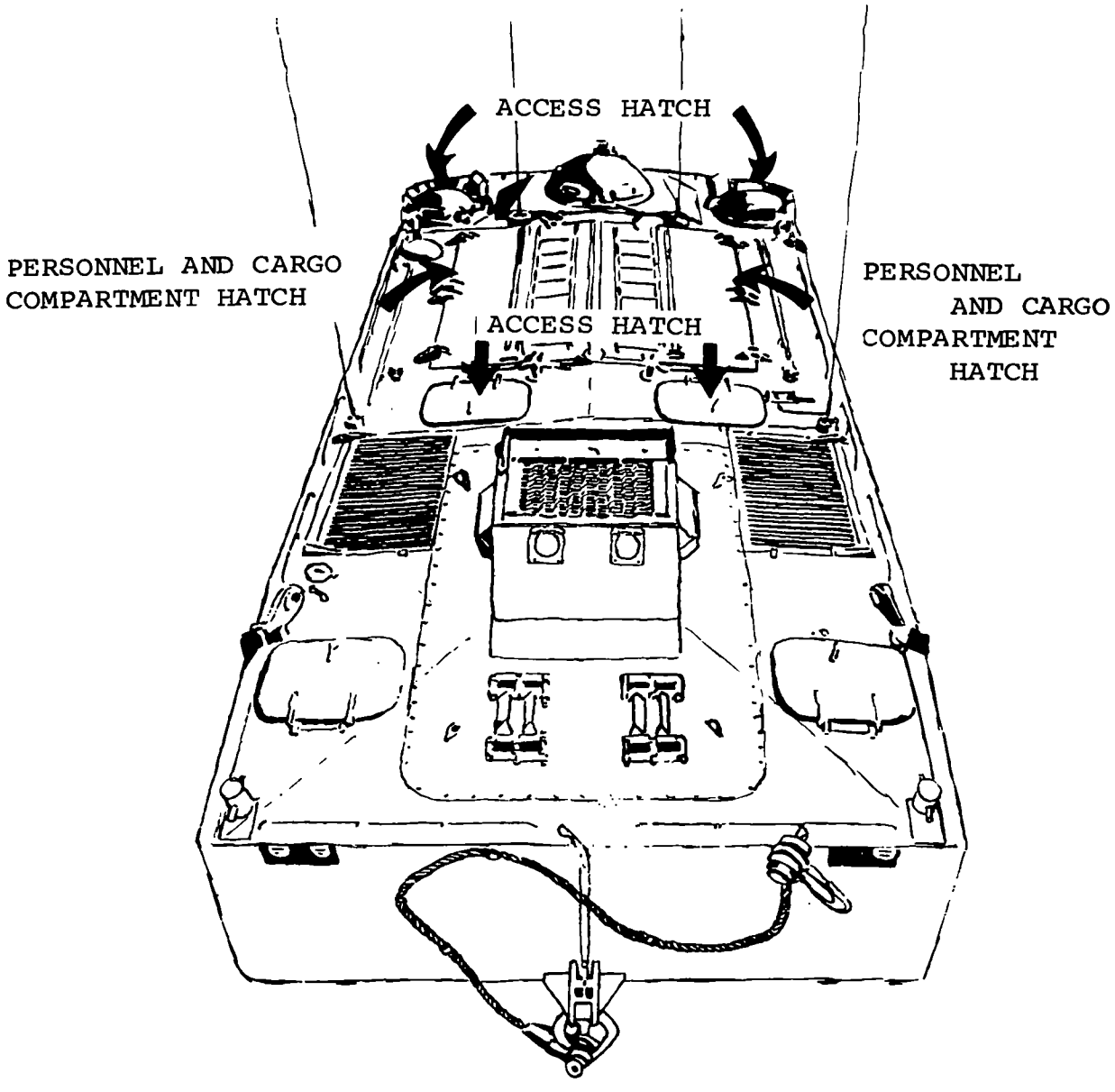


Figure F–1. Location of access hatches on the LVT.

constructed. Their loss by sinking is made less probable because of one auxiliary bilge pump on each tractor which is powered by a separate powerplant, providing a means to delay sinking until passenger evacuation is accomplished. Even so, under certain circumstances, vehicle sinkings may occur. Such sinkings are normally caused by water entering the engine compartment aft, causing the vehicle to sink stern first. In the event of rapid sinking, it may not be possible to evacuate passengers before the vehicle slips under the surface of the water. A percentage of air will be trapped within the personnel and cargo compartment of a sunken LVT, and will manifest itself as a "pocket" of air when the vehicle has settled. This "pocket" should be sought out by all personnel aboard until internal and external pressures have equalized. When equalization takes place, amphibious vehicle crewmembers remove the spring-loaded escape hatches on either side of the vehicle (fig. F–2), being careful not to be forced against vehicle protusions as a result of the sudden tension release on

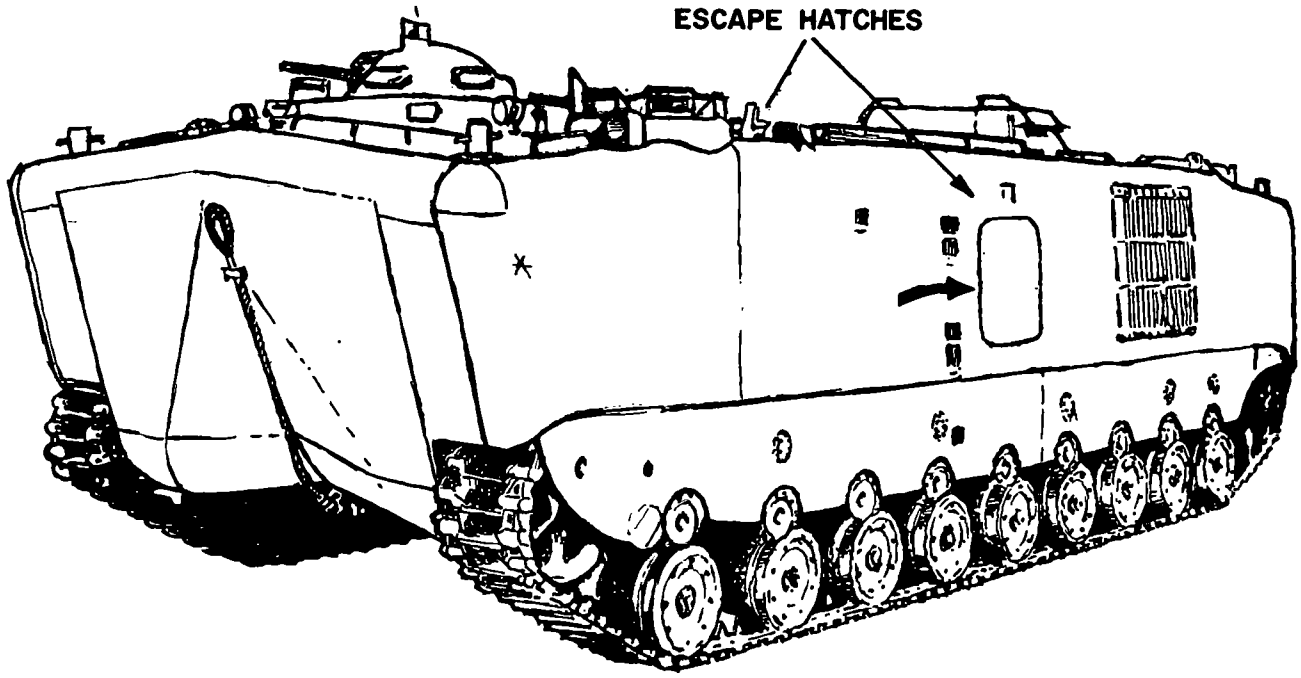


Figure F–2. Location of escape hatches on the LVT.

the hatch. No attempt should be made to release the escape hatches until they are totally submerged. Embarked personnel are then led to the escape hatches by crewmembers. All personnel are careful not to inflate the inflatable type life preserver before leaving the escape hatch since they cannot negotiate the hatch with an inflated jacket. Personnel wearing kapok life jackets remove and hand-carry them through the hatch for use as a temporary floating device upon reaching the surface. If the vehicle settles in the surf zone with the topside above water, passengers and crew should await recovery by a recovery vehicle and not attempt abandonment of the vehicle.

F–12. Distress Signals for Amphibious Vehicles

When a vehicle becomes disabled in the water, the crew chief exerts every effort to correct the cause of the disability after insuring the safety of the passengers. When it is apparent that the vehicle is sinking or that repairs cannot be effected with personnel and equipment on hand, the crew chief signals for assistance. Distress signals to be used are—

a. Sinking, Day or Night. Fire a signal, aircraft, red tracer, red-red star, AN–M57, from an M9 pyrotechnic projector into the air over the vehicle. Wave the letter "N" flag vigorously during daylight.

b. Disabled, Day. Display the letter "N" flag (blue and white checked) from a boat hook held in a vertical position.

c. Disabled, Night. Employ spotlights, headlights, and battle lantern beamed vertically into the air. During darkness, the distress signal for sinking (red-red star) is fired if the crew chief judges that there is a possibility of sinking or that the vehicle cannot be assisted.

F–13. Surfing and Waterborne Criteria for the LVT

The LVT's possess excellent surfing characteristics. They are capable of negotiating plunging breakers in excess of 15 feet. However, for purposes of training both crews and embarked personnel, limitations are imposed on the scope of vehicular operation to provide a greater degree of safety. The following consolidated list of safety factors is evaluated individually and collectively prior to the conduct of LVT surfing operations. They are considered maximum for safe LVT training operations.

a. Maximum Surf Conditions for Safety in Training Operations.

Wave height	*Lines of breakers in surf zone*
10 feet	3 or less
8 feet	4 or more with close intervals (50 yards or less)

b. Sea-Surface-Wind-Waves Not Exceeding Six Feet In Height.

(1) Wind wave height should not exceed four feet during reduced visibility.

(2) Wind wave height not exceeding four feet when superimposed on swells four feet high or more.

(3) Wind wave height not exceeding five feet when embarkation or re-embarkation in LST is necessary.

c. *Swells at Sea.*

(1) Long undulating swells not exceeding ten feet in height.

(2) Short, frequent, and steep swells not exceeding seven feet in height.

(3) During reduced visibility, swells not exceeding five feet in height.

(4) Swell height should not exceed five feet when embarkation or re-embarkation in LST is necessary.

d. Vehicular Limitations. The LVT is not suited to movement over an excessive distance at sea or to remaining afloat for long periods of time. These situations increase the possibility of mechanical breakdown, crew and passenger fatigue, and seasickness. Maximum recommended distances for LVT movement when waterborne are—

(1) Line of departure to beach—2,750 meters.

(2) Ship to line of departure—1,000 meters. During periods of reduced visibility, the distance from the line of departure to the beach is reduced to 1,000 meters, if possible.

F–14. Operating Speed and Distance

Amphibious vehicles, in particular those of the LVT series, are restricted in operating speed, and with regard to the distance which must be maintained between vehicles. These restrictions are necessary due to limited maneuverability afloat, restricted vision from within, and the responsibility for the safety and welfare of personnel in the area of vehicle operations.

a. Operating Speed and Distance While Waterborne. Amphibious vehicles afloat maintain a distance between vehicles of at least 30 meters at all times during periods of unrestricted visibility. In operations at night or under conditions of reduced visibility, this distance is 30 meters or the limit of visibility, which ever is less. Vehicles are authorized to operate at maximum speed while waterborne; however, speed of the vehicle is influenced by the proximity of other craft and by the ineffectiveness of the braking system while the vehicle is afloat.

b. Operating Speed and Distance Ashore. During periods of daylight and unrestricted visibility, vehicles maintain an interval of 50 meters. At night and during periods of reduced visibility, the distance is 50 meters or the limit of visibility, whichever is less. When operating in congested areas ashore, vehicle speed is always slow enough to permit stopping within the limits of visibility. When vehicles find it necessary to enter a bivouac area at night, extreme care is exercised. Each vehicle is escorted by one guide with a flashlight, and enters the area at a speed of no more than five miles per hour.

F–15. Beach Rescue Teams

During surf and waterborne operations conducted by amphibious vehicle units as training exercises, a beach rescue team is formed for conduct of rescue operations, when necessary and practicable. Recommended composition of the beach rescue team is as follows:

a. Composition of Beach Rescue Team for LVT Operations.

(1) Two LVTP's or one LVTP and one LVTR.

(2) Normal crews for the vehicles.

(3) Three expert swimmers per vehicle, exclusive of the crew.

(4) At least one ring-buoy with 50 feet of line attached for each rescue vehicle.

(5) Heaving lines and a matched set of towing lines 2 inches in diameter, 40 feet in length, with an 18-inch eye at each end.

(6) One aidman.

(7) An officer or NCO in charge.

(8) One 4x4 cargo vehicle with driver.

(9) One jeep-mounted radio, compatible with radios contained in the operating amphibious vehicles, with radio operator.

(10) One resuscitator.

(11) One 4x4 ambulance with driver.

b. Composition of Beach Rescue Teams for LARC Operations. The same composition is recommended, except that rescue vehicles should be one LARC, in lieu of one LVTP.

c. Action of the Beach Rescue Team. Beach rescue team operations are conducted under the control of the senior amphibious vehicle officer present. While their principal mission is the rescue of disabled vehicles in the surf zone, they may be employed elsewhere as the situation dictates. The initial aim of beach rescue team operations is rescue of embarked passengers and the vehicle crew. They may subsequently assist in recovery of vehicles, time and the situation permitting. Appendix K lists procedures for rescue of disabled waterborne LVT's.

APPENDIX G

LIGHTERS, AMPHIBIOUS, RESUPPLY, CARGO

G–1. LARC–V Description

This U.S. Army vehicle is identified as Lighter, Amphibious, Resupply, Cargo, 5-Ton (LARC–V). It is employed in a cargo carrying capacity during amphibious operations, river crossings, and limited operations ashore.

G–2. LARC–V Characteristics

a. Length, overall .....35 ft.
b. Width, overall .....10 ft.
c. Speed, loaded:
(1) Water .....8.7 knots
(2) Land .....25 mph
d. Operating range, loaded:
(1) Water .....60 miles
(2) Land .....160 miles
e. Fuel consumption—gallons per hour ..20
f. Crew 2
g. Passenger capacities:
(1) Normal 0
(2) Emergency 20
h. Cargo capacities:
(1) Normal .....4.5 short tons
(2) Maximum .....5 short tons

G–3. LARC–XV Description

This U.S. Army vehicle is identified as Lighter, Amphibious Resupply, Cargo, 15-Ton (LARC–XV). It is employed in a cargo carrying capacity during amphibious operations, river crossings, and limited operations ashore.

G–4. LARC–XV Characteristics

a. Length .....45 ft.
b. Width .....14 ft.
c. Speed:
(1) Water .....8.4 knots
(2) Land .....20 mph
d. Passenger capacity .....NONE
e. Cargo capacity .....30,000 lbs.
f. Weight, unloaded .....38,000 lbs.
g. Fuel capacity .....435 gals.
h. Crew 2

G–5. LARC–LX Description

This U.S. Army vehicle is identified as Lighter, Amphibious, Self-Propelled, Steel, 60-Ton (LARC–LX). It is employed in a passenger and cargo carrying capacity during amphibious operations, river crossings, and limited operations ashore.

G–6. LARC–LX Characteristics

a. Length, overall .....62 ft. 6¾ in.
b. Width, overall .....26 ft. 7 in.
c. Speed, loaded:
(1) Water .....7 knots
(2) Land .....14 mph

Figure G–1. Lighter, amphibious, resupply, cargo, 5-ton (LARC–V).

d. Operating range, loaded:
  (1) Water .....105 miles
  (2) Land .....210 miles
e. Fuel consumption, gallons per hour ..40
f. Crew 8
g. Passenger capacities:
  (1) Normal 125
  (2) Emergency 200
h. Cargo capacity:
  (1) Normal .....53.6 short tons
  (2) Emergency .....89.3 short tons

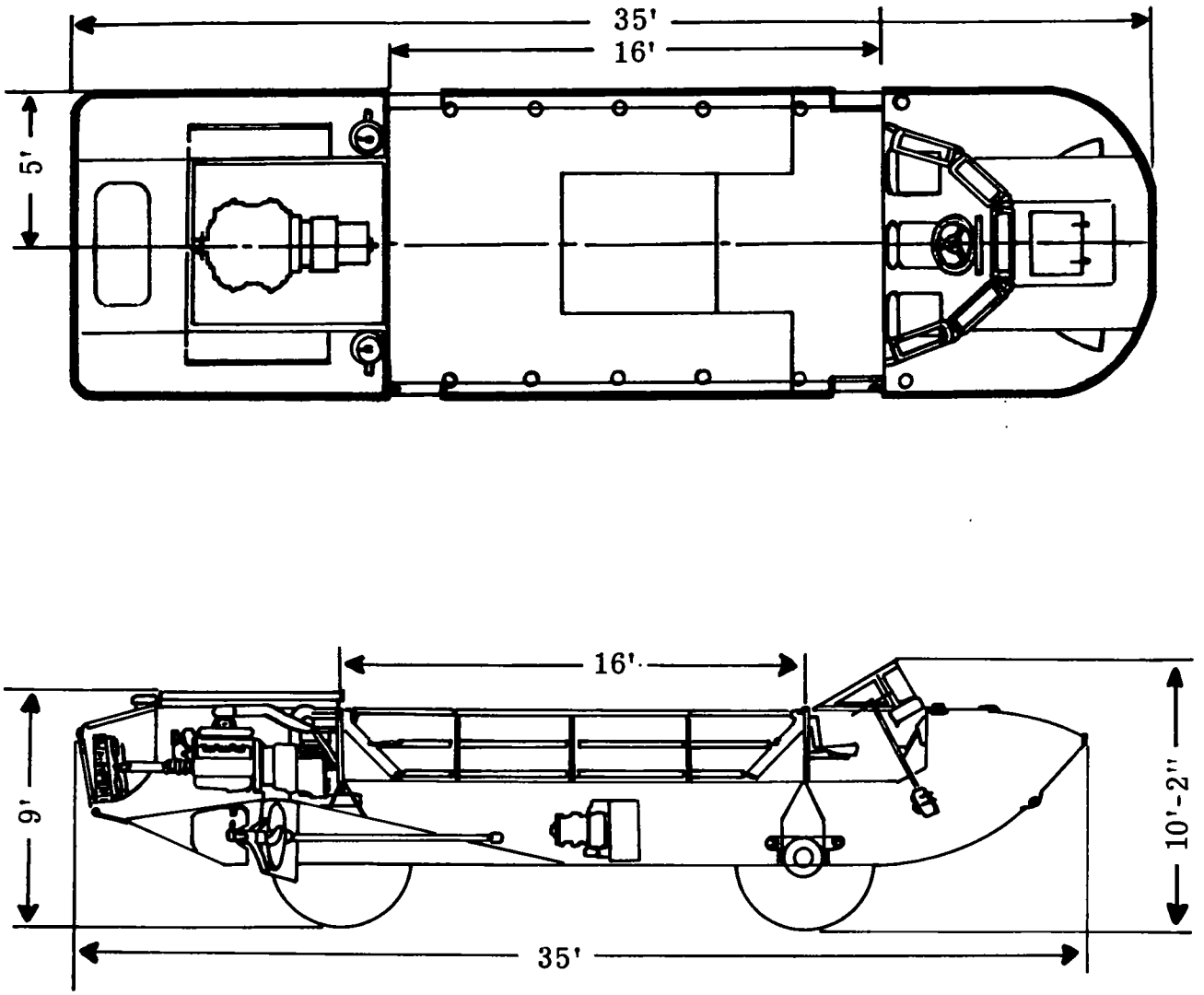


Figure G–2. Dimensions of the LARC–V.

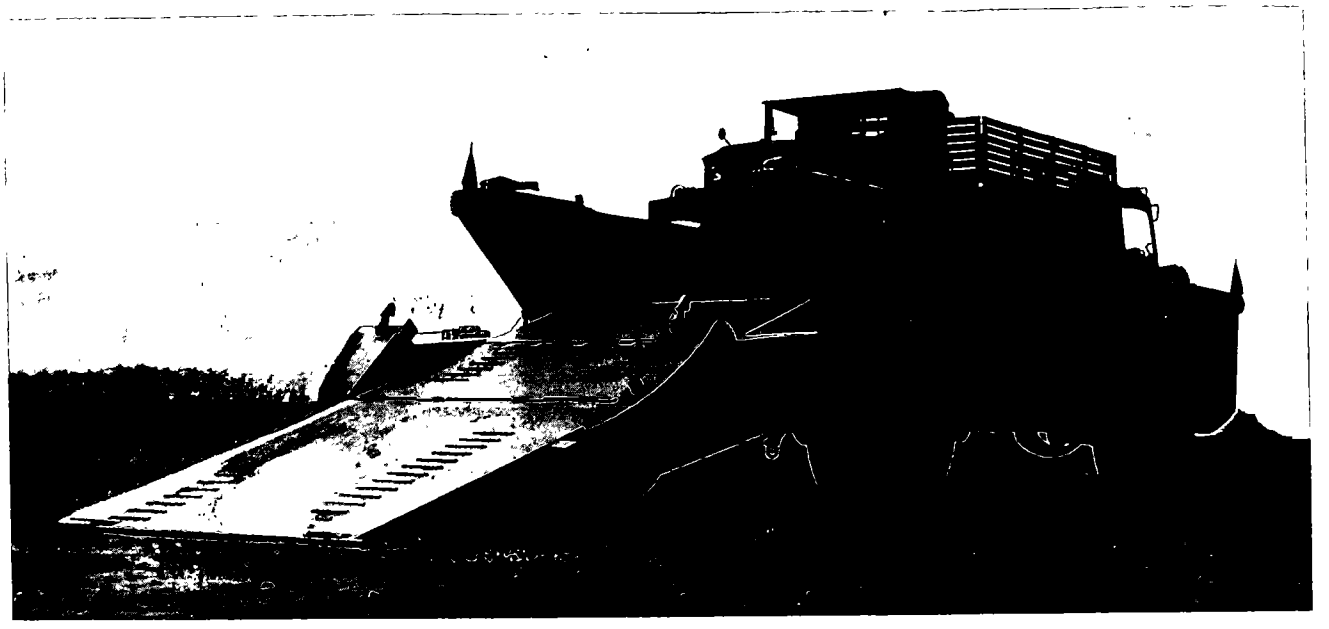


Figure G–3. Lighter, amphibious, resupply, cargo, 15-ton (LARC–XV).

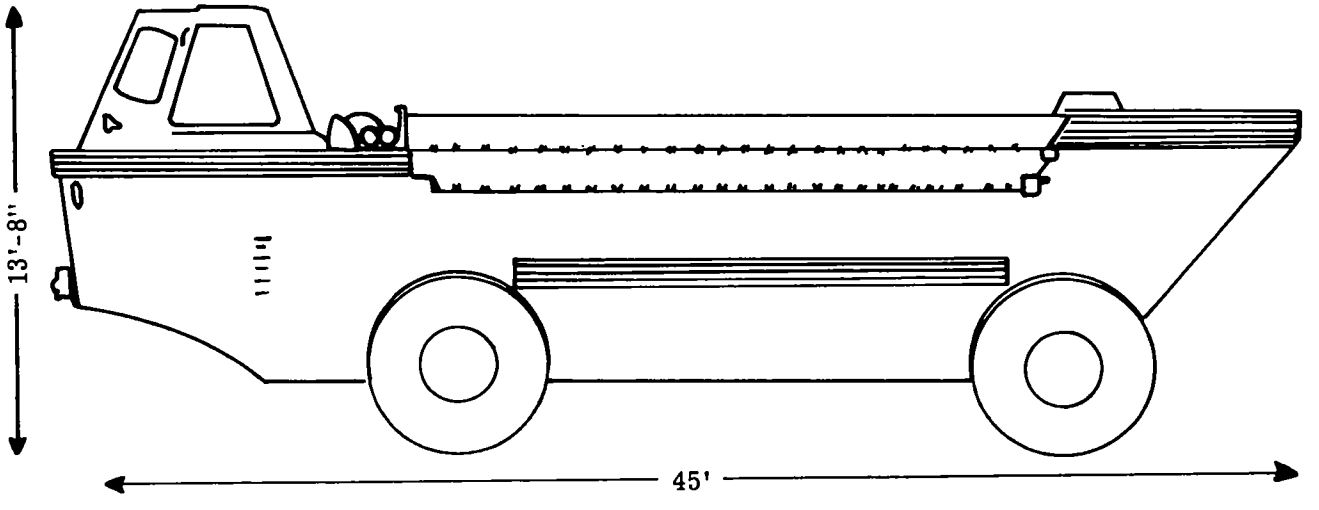


Figure G–4. Dimensions of the LARC–XV.

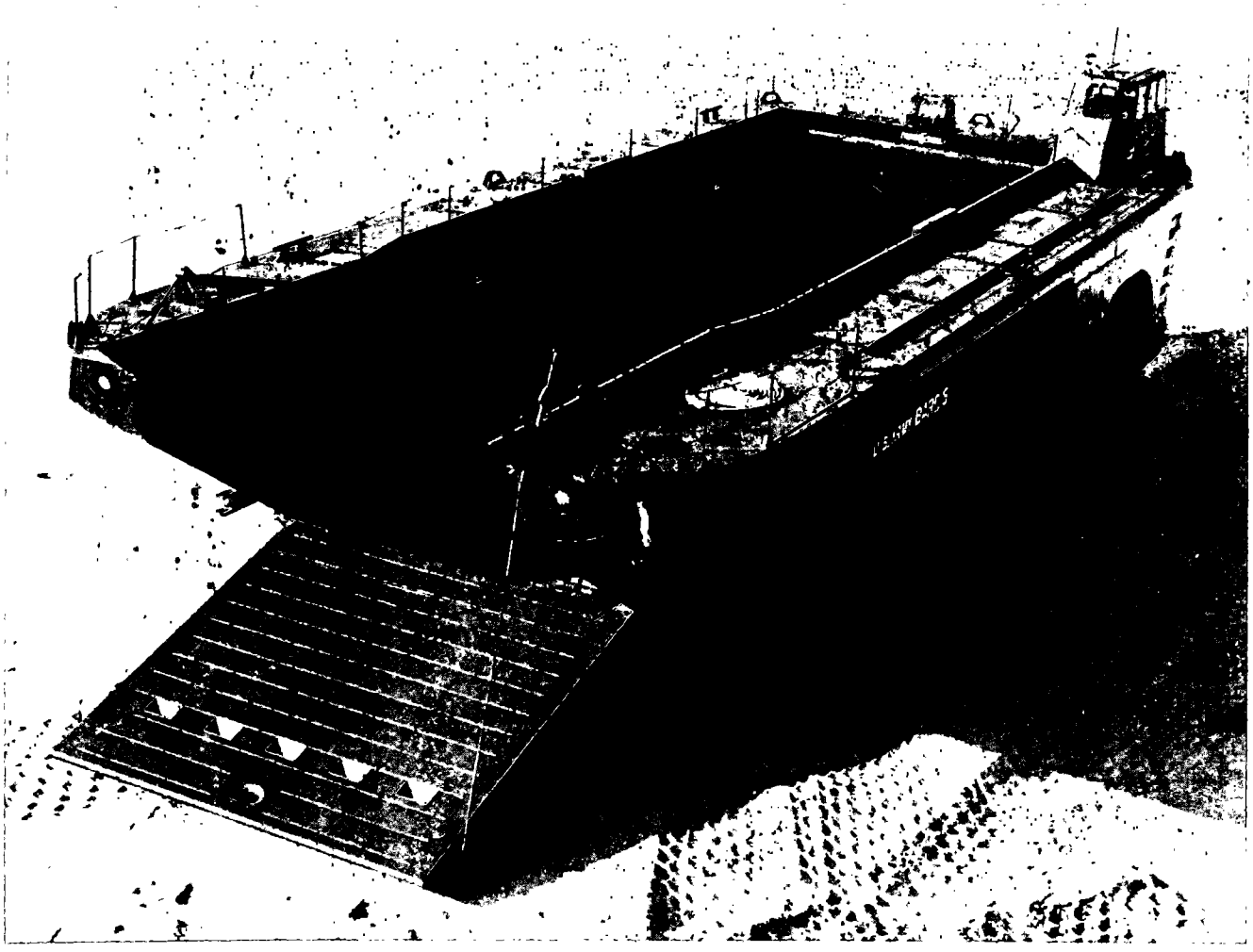


Figure G–5. Lighter, amphibious, self-propelled, steel, 60-ton (LARC–LX).

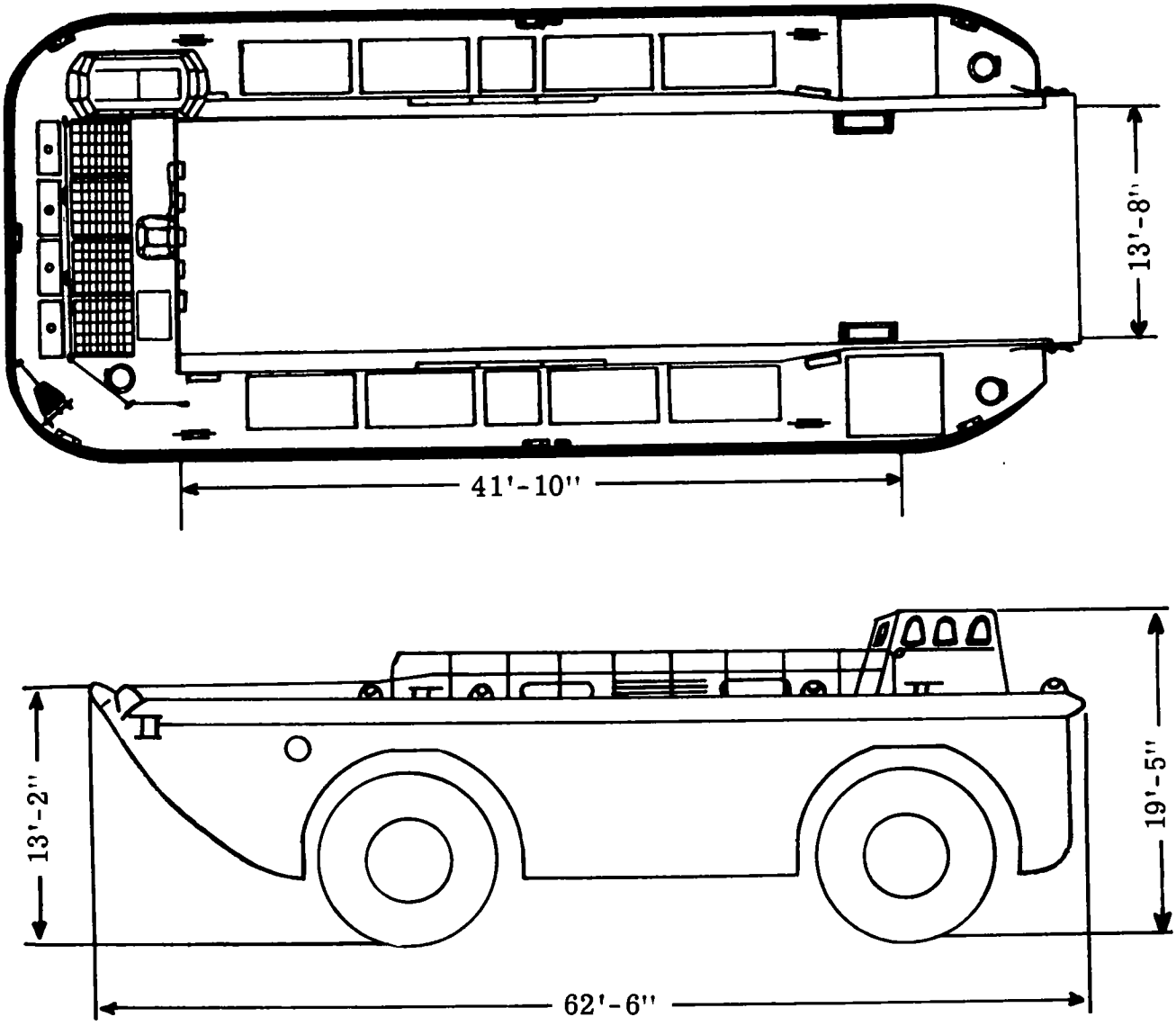


Figure G–6. Dimensions of the LARC–LX.

APPENDIX H

EMPLOYING THE LVTP AS A FUEL VEHICLE

H–1. General

The LVTP5, with fuel ferrying assembly aboard, may be utilized to refuel other vehicles ashore. This technique can be used during amphibious operations, mechanized operations, or other special operations when conventional fueling vehicles are unavailable or unable to operate in the particular environment. Figure H–1 illustrates the assembly loaded aboard the LVTP5. It is recommended that one-half inch cable lashings with turnbuckles be employed to secure the assembly. These lashings are not illustrated in figure H–1.

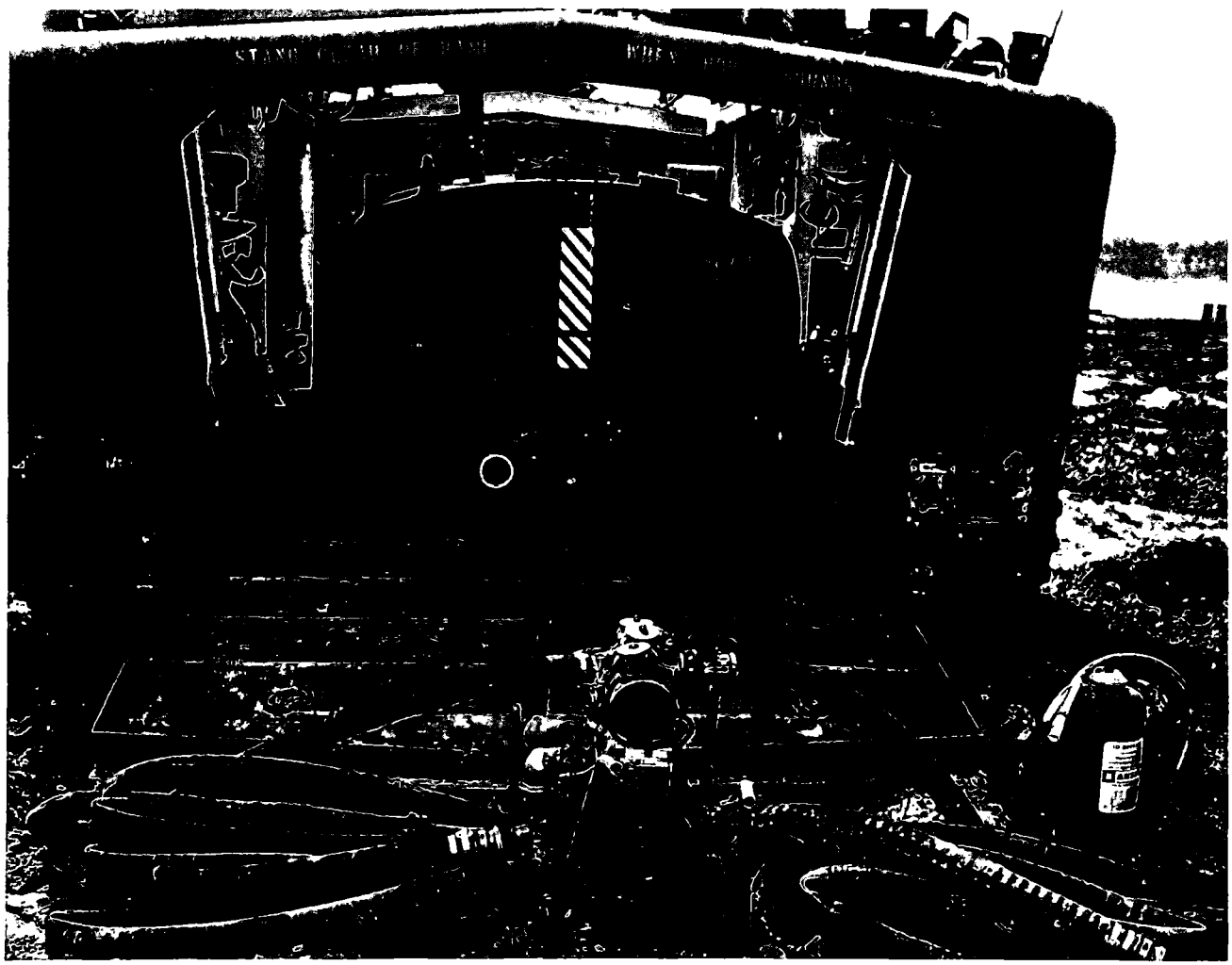


Figure H–1. LVTP5 with fuel ferrying assembly loaded aboard.

H–2. Fueling the Refueler

Special precautions and procedures are followed in filling bulk fuel cells aboard the LVTP5 to insure that the cells are filled to capacity and to protect against fire. The ferrying assembly must be raised by using 6x6 blocks under the skids to allow the hose from the after tank to pass under the front fuel cell. Fueling is accomplished as follows:

a. The LVTP5 refueler is driven to a designated fueling point and parked with bow downwind, if practicable.

b. The main engine is shut off, the ramp lowered, and scavenger and vent blowers are turned on.

c. One crewmember stands by the ramp with a portable fire extinguisher.

d. Both after engine compartment hatches are opened.

e. After waiting 10 minutes, the crew enters the engine compartment, checks all oil levels, and inspects the compartment for any safety hazard.

f. The inspection hatch is removed from one tank of the fuel cell at a time to determine the amount of fuel each is to receive.

g. One crewman goes topside to receive the single point pressure nozzle.

h. The amphibian commander removes the gas tank cap, inspects the single point pressure nozzle to insure that the O-ring is properly positioned, then secures the nozzle to the single point pressure nozzle attachment cap.

i. One crewman dismounts from the vehicle and moves to the metering valve to assist the fuel attendant in determining required amounts of fuel.

j. The amphibian commander goes topside where the nozzle is in view, announces the amounts of fuel desired, and gives the signal to commence pumping.

k. After the correct amount of fuel has been placed in one tank, the fueling procedure is continued in order to fill the remaining tanks. Bulk fuel cells are filled at a moderate pumping rate.

H–3. Dispensing Fuel

Dispensing fuel from the bulk fuel cell aboard the LVTP5 is accomplished as follows (if water operations are to be conducted after fuel has been dispensed, pump from the after pad first to insure trim once the LVTP5 is waterborne):

a. Upon arriving at a dispensing point, the main engine is shut down, the ramp dropped to a horizontal position, and scavenger and vent blowers turned on.

b. One crewman installs a chain hoist to the ramp and stands by with a portable fire extinguisher.

c. The amphibian commander shuts off the master switch and assists the driver in installing the pump. The installed expedient refueler pump is then moved forward for dispensing.

d. The dispensing hose is passed to the crew aboard the vehicle to be fueled. The vehicle to be fueled has one crewman standing by with a fire extinguisher during fueling.

e. The ground wire of the dispensing nozzle is attached before pumping begins.

f. When the commander of the vehicle being fueled is ready to begin operation, he turns on the master switch and indicates his readiness to begin.

g. The crew aboard the vehicle being refueled is instructed by the refueler commander as to the operation of the dispensing nozzle, including a caution not to attempt to completely fill the tanks. If refueling one vehicle, a surge line (return feed and controlled nozzle flow) will prevent excessive fuel flow.

h. The auxiliary fuel connection shutoff and selector valves are used only in hooking up an auxiliary fuel supply, or in case of emergency, in order to completely shut off the fuel supply to the main or auxiliary generator engine.

APPENDIX I

OPERATING PROCEDURES AND MAINTENANCE FOR THE LVT

Section I. OPERATING PROCEDURES

I–1. Prewater Operation Checklist for the LVT

a. All 14 hull and 2 ramp plugs installed.

b. Cover assembly on superstructure open.

c. Inspect bilge, insure no debris present.

d. Insure hydraulic bilge pumps are operational.

e. Insure auxiliary bilge pump is operational.

f. Insure escape hatches are unobstructed.

g. Crew compartment blower cover blocked open during all operations.

Note. Check but leave switch off until extreme heat necessitates running blower.

h. Serviceable lifejacket on each person embarked.

i. All hatches closed and dogged.

j. Ramp secured, handwheels tight.

k. Fuel selector switch on full cells.

l. Transmission in high range.

m. Cooling fans off prior to water entry.

n. Vehicle in land steer until waterborne.

o. Hand throttle advanced to 2,000 RPM.

I–2. LVT Cold Weather Main Engine Starting Procedures

The below listed steps are recommended in starting LVT main engines during cold weather operations:

a. Follow the normal "before operating procedures" outlined in the *Marine Corps Maintenance Manual* (available through U.S. Marine Corps channels) for the LVTP5. Ten to fifteen minute preheat of the engine compartment will greatly facilitate engine starting.

b. Depress the accelerator once fully to insure that the throttle linkage is free of ice. Set the hand throttle at the 10 percent open position.

c. Turn on the master switch checking the engine for hydrostatic lock by cranking the engine over at least two revolutions with magneto and boost switches OFF.

d. Preprime the engine four full strokes at ambient temperature from 10° F to −20° F.

e. Turn magneto switch ON and, while priming lightly, hold both the START and BOOST levers in the ON position, continuing to prime.

f. When the engine starts, release the START lever and continue to hold the BOOST lever until the engine is running at 500 rpm or higher. DO NOT HOLD the boost switch on for longer than one minute as booster coils may overheat.

g. Do not depress the foot accelerator until the engine is running at least 500 rpm or excessive gasoline will enter the manifold.

h. Idle the engine at approximately 1000–1100 engine rpm until it becomes warm.

Section II. MAINTENANCE FOR LVT's

I–3. General

Maintenance is defined as any action taken to keep materiel in a serviceable condition or restore it to serviceability when it is unserviceable. The objective of all maintenance is the prevention of potential mechanical and electrical failure and the detection, isolation, and correction of incipient mechanical and electrical failures through timely

preventive maintenance services and frequent inspections. Maintenance services include inspection, repair, testing, servicing, modification, and evacuation of vehicles. The success of employment of engineer amphibian assault companies is heavily dependent on the state of maintenance of vehicles in the unit. The LVT, configured as a vehicle able to operate on land or in the water, has extensive inherent maintenance problems. High vehicle availability rates, the objective of any maintenance program, are the result of sound, competent, and continuing command supervision at all levels of the unit's maintenance program. This supervision has as its objective the establishment of timely crew maintenance at organizational level. Organizational maintenance and personnel facilities are augmented as necessary by mobile maintenance teams from direct support maintenance activities. Commanders at all levels insure that trained maintenance personnel are constantly available to operating engineer amphibian assault companies in proportion to the number of vehicles committed. Care is exercised during amphibious planning and throughout the operation to insure the continuing availability of required maintenance personnel and services.

I–4. Categories of Maintenance

Maintenance is classed as organizational, direct support, general support, and depot maintenance. Engineer amphibious battalions and their elements perform organizational maintenance on their organic amphibious vehicles. Direct support and general support maintenance for engineer amphibious units are performed by direct support and general support maintenance units of the FASCOM, and by the direct support maintenance platoon, headquarters and headquarters company, engineer amphibious battalion, when this augmentation is authorized. For detailed information on maintenance concepts and organizations, and policies and responsibilities for maintenance operations, see AR 750–1 and AR 750–5.

I–5. Organization of Maintenance

Maintenance for the engineer amphibious battalion is supervised by the battalion maintenance officer who is a member of the commander's special staff. Organizational maintenance for the vehicles organic to the headquarters and headquarters company, engineer amphibious battalion is performed by the mechanics assigned to the company headquarters. Backup organizational maintenance for all organic vehicles of the battalion is performed by the battalion maintenance section, headquarters and headquarters company, engineer amphibious battalion. When the headquarters and headquarters company, engineer amphibious battalion is authorized augmentation by the direct support maintenance platoon (TOE 5–406), direct support maintenance is provided for organic battalion vehicles. The maintenance section organic to each of the amphibian assault companies is supervised by a warrant officer and is capable of performing organizational maintenance on the amphibious vehicles assigned to the company.

I–6. The Maintenance Officer

Maintenance officers at the company and battalion level have an important role in the employment of the engineer amphibious battalion. These officers, as a result of their training and experience, make broad and comprehensive recommendations to the commander in the following areas:

a. Capabilities and limitations of the LVT under conditions of the proposed operation and vehicle recovery procedures.

b. Repair parts requirements.

c. Fuel, oil, and lubrication requirements, to include seasonal changes.

d. Modification or alteration of vehicles and additional maintenance procedures that may be required prior to commitment in a special operation.

e. Placement of maintenance personnel within the unit to insure optimum support.

I–7. The Landing Vehicle, Tracked, Recovery (LVTR)

The principal vehicle available to the engineer amphibian assault company maintenance section in the accomplishment of their mission is the LVTR. One LVTR is assigned to each of the company maintenance sections of the engineer amphibian assault companies. This vehicle is employed by maintenance personnel to recover and repair disabled vehicles ashore. It is also used as a platform from which immediate repairs are accomplished, if feasible. A list of the characteristics and an illustration of this vehicle are found in appendix E. Special equipment installed on the LVTR includes the following:

a. A crane assembly mounted on the bow of the top deck. It is employed to lift and swing loads and has a capacity up to 7,000 pounds.

b. A winch skid mounting a retrieving winch and crane winch. The winch skid is mounted in the crew and cargo compartment.

c. A power unit skid furnishing power for an AC generator, welder, and two air compressors.

(1) An AC generator furnishing electric power for tools and electric lights.

(2) A DC generator welder mounted on the forward starboard side of the power unit skid.

(3) Two 2-cylinder, water-cooled air compressors mounted on the aft end of the power unit skid.

d. A retrieving winch with a 45,000-pound capacity controlled by the crew chief.

I–8. Crew of the LVTR

The crew of the LVTR normally consists of the recovery sergeant, the senior recovery mechanic and the LVTR driver. When required, additional personnel from the maintenance section may be added to the crew.

I–9. Maintenance Inspections

All engineer amphibious unit commanders are responsible for the conduct of periodic maintenance inspections of vehicles assigned to their units. Such inspections may be formal or informal, and may consist of spotcheck, preventive maintenance inspections, or inspections to verify materiel readiness. These inspections are conducted as frequently as the tactical situation permits when units are committed, and on a regular schedule when operating in a training status. Battalion and company maintenance officers and personnel are utilized to assist in inspecting engineer amphibian assault units. Supporting DS units may be requested to assist in such inspections, when necessary. When engineer amphibious battalions are assigned to engineer amphibious groups or brigades, these inspections may be performed by group or brigade personnel. See also AR 750–8.

I–10. Maintenance Schedules

Regular maintenance schedules for all LVT's and LARC's in the engineer amphibious battalion are prepared and published by each unit. These schedules are dependent upon the unit's operating environment, state of training, and availability of facilities and technical personnel. They are based on data contained in technical publications pertaining to the vehicle. Maintenance schedules are necessarily flexible, particularly under combat conditions, but are adhered to as closely as possible to insure maximum vehicle availability rates. For more detailed information, see TM 38–750 and DA Pam 750–1. Maintenance schedules and instructions are revised when units are operating in unusual environments. Examples of such operations are extended waterborne employment to unload ships, desert operations, jungle operations, arctic operations, and operations with a mechanized LVT task force.

APPENDIX J

LANDING SHIPS AND LOADING PROCEDURES FOR LVT's

J–1. Landing Ships

Ships of the amphibious fleet have varying internal characteristics which affect their amphibious vehicle carrying capacity. Characteristics of each ship are set forth in the ship's characteristics pamphlet. Prior to loading amphibious vehicles aboard, the ship's characteristics pamphlet must be consulted in order to determine the ship's true carrying capacity. The amphibious vehicle carrying capacities of certain classes of the landing ships listed below are approximations and should not, therefore, be used for planning data.

Type ship and class	LVT type vehicle capacity
LANDING SHIP DOCK (LSD):	
ASHLAND and CABILDO Class:	
Well deck	32
Half deck	No capacity
Super deck	No capacity
CASA GRANDE Class:	
Well deck	32
Half deck (mezzanine)	No capacity
Super deck	No capacity
THOMASTON Class:	
Well deck	49–53
Half deck (mezzanine) (when installed)	10
Super deck (less helicopter deck) (when installed)	20
AMPHIBIOUS TRANSPORT DOCK (LPD):	
RALEIGH Class:	
Well deck	15
Upper vehicle storage deck	10
LANDING SHIP TANK (LST):	
542 Class:	
Tank deck	14
Main deck	No capacity
1156 Class:	
Tank deck	17
Main deck	No capacity
1171 Class:	
Tank deck	19
Main deck	No capacity

J–2. Offshore Loading of LVT's

LVT's normally are loaded aboard landing ships such as those listed above rather than AKA's and APA's for transportation to the assault area. In organizing for loading aboard the landing ship, LVT's and landing craft are provided separate beach areas. Embarking troops are transported to the ship by landing craft rather than LVTP5's, if possible. LVT's are grouped according to the ship on which they will embark and are then led to that ship by naval guide boats. Loading plans are prepared to insure that LVT's will debark in proper sequence for landing. The officer in charge of LVT loading is responsible for insuring the proper loading sequence.

J–3. Loading Aboard the Landing Ship Tank (LST)

Techniques for loading the LVT aboard the LST differ depending on whether or not the LST is equipped with a turntable. Means of loading the LST with turntable also vary depending on sea and wind conditions in the loading area. Techniques for each type of loading situation are discussed below.

a. Embarking on LST With Turntable.

(1) *In fair seas and good weather.* LVT's are driven aboard forward, turned around, and backed into berthing position. Vehicles to be loaded forward of the turntable follow the procedure outlined in *b* below.

(2) *In rough seas and/or foul weather.* LVT's loading aboard turntable-equipped LST's in rough seas or during foul weather normally follow the below listed procedures:

(*a*) Vehicles to be loaded aft of the turntable approach the LST from the front on signal from the approach control officer. Upon signal from the loading officer on the tank deck ramp, and at a distance of about 30 feet from the ramp, am-

phibious vehicle tracks are placed in the neutral position.

(*b*) Ship's line handlers then pass the heaving line with steadying lines attached to an LVT crewmember.

(*c*) The LVT crewmember passes the eyes of the steadying lines over the forward mooring bitts of the vehicle so they cross. The eye of one line is normally painted red and is placed over the starboard bitt, insuring that the lines cross.

(*d*) The line handlers, on signal from the loading officer, heave the LVT to so that the tracks rest securely on the edge of the ramp of the ship.

(*e*) Upon signal from the loading officer, the LVT is driven up the ramp until "leveled off," stopped, and steadying lines disengaged and cast off.

(*f*) Vehicles are then driven onto the turntable, turned around, and spotted.

(*g*) Vehicles to be located forward of the turntable follow the procedures outlined in *b* below.

b. Embarking on LST Without Turntable.

(1) The approach control officer, a naval officer from the ship's crew, controls approaching LVT's from a station on the tank deck of the ship. He maintains continuous contact with a flagman stationed in the eyes (forward position) of the ship by use of telephone talkers.

(2) Each LVT, on signal from the approach control officer, approaches the ship's bow from port or starboard at an angle of 45° (fig. J–1).

(3) The approach control officer signals the ship's line handlers at the ramp to pass the heaving-line, with steadying-lines attached, to a member of the LVT crew.

(4) The LVT crewman detaches the heaving-line and places the eyes of the steadying-lines over the after mooring bitts of his vehicle so that they cross. The eye of one line normally is painted red and is placed over the starboard bitt, insuring that the lines cross.

(5) The ship's officer in charge of line handlers, stationed at the ramp, then takes charge. By means of lines already attached, the LVT is positioned with the tracks firmly against the ramp. The vehicle is then backed up the ramp and stopped for removal of steadying-lines.

(6) The LVT crew chief (amphibian commander), assisted by guides, directs the vehicle to its proper position on the ship's tank deck.

(7) The LVT crew secures the vehicle with lashing equipment furnished by the ship. When 1½-inch chain is used, two lashings are attached to the front and rear towing eyes, cross latched in a manner calculated to minimize forward or lateral movement. In addition, two lashings are attached to each track, fore and aft, as close to the ship's deck as possible. These lashings are crossed fore to aft. If smaller lashing chain is used, extra chains may be used higher on the towing eyes or the tracks. Care is taken to insure that lashing gear does not cause any pressure on the sprockets, bogey wheels, or drive wheels of the vehicle. All lashings should be inspected by the ship's first lieutenant and an officer or NCO of the engineer amphibian assault company prior to getting underway. Dunnage material of at least one inch thickness, provided by the embarkation unit, is placed under the tracks of all vehicles (fig. J–2).

(8) While LVT's are embarked aboard ship, their engines are operated regularly. Routine maintenance inspections are made and the indicated repairs completed.

(9) Loading of LVT's aboard a beached LST is controlled by an engineer amphibian assault unit officer, who prescribes the vehicle loading sequence. Once loaded, vehicles are positioned and secured as previously described.

J–4. Loading Aboard the Landing Ship Dock (LSD) and Amphibious Transport Dock (LPD)

The procedures outlined below are prescribed for LVT's embarking aboard the LSD or LPD. Figures J–3 and J–4 illustrate the procedures involved.

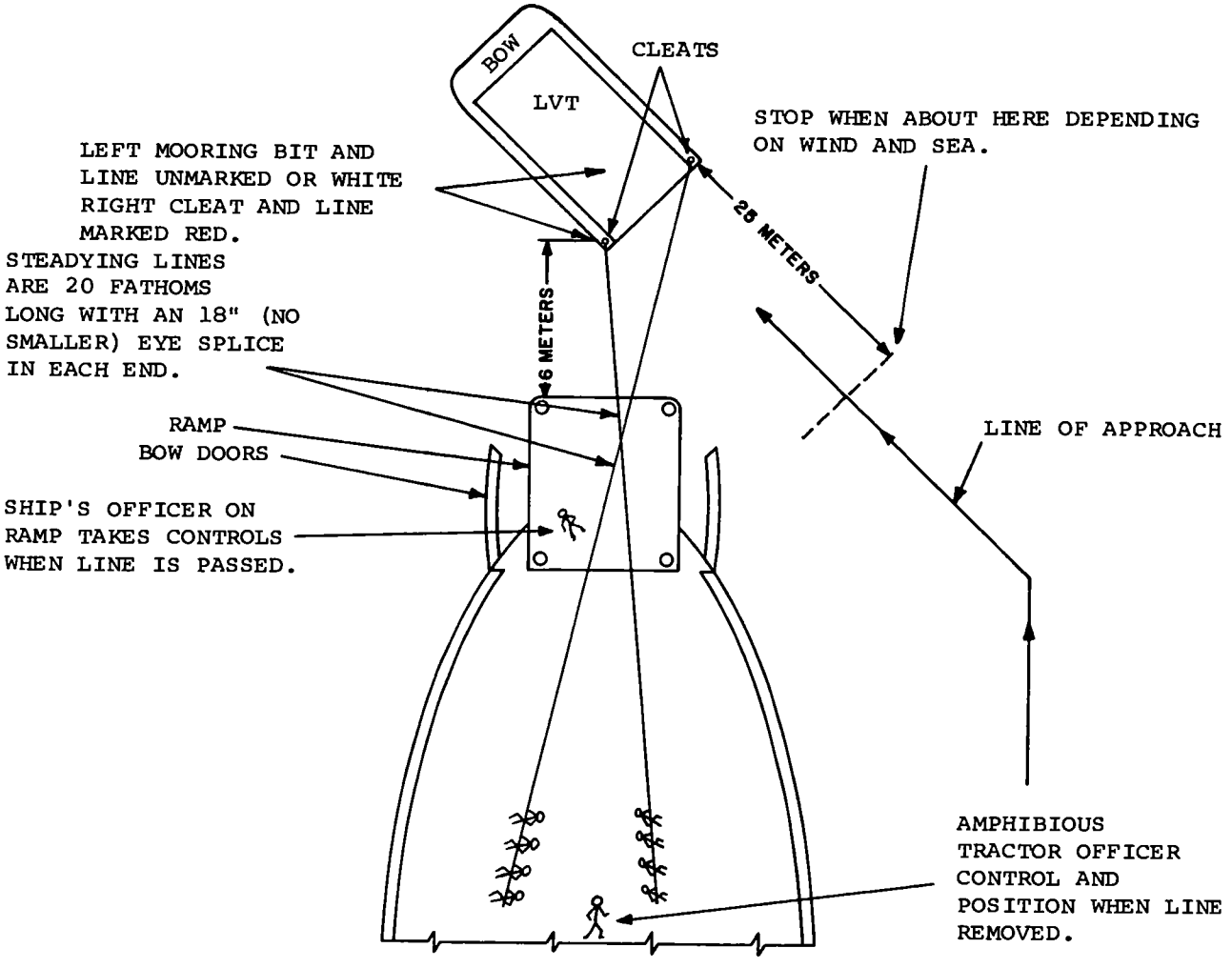


Figure J–1. Illustration of procedure for loading the LVT aboard an LST not equipped with turntable.

a. Vehicles approach the ship "bow on" and cross over the sill at the stern gate of the ship. An interval of 50 to 75 meters between vehicles in column is maintained to provide for the most efficient loading. The LSD is ballasted to approximately six feet of water at the sill. The forward portion of the well deck is dry.

b. After crossing the sill, LVT engines are idled and brakes locked (a, fig. J–3). Steadying-lines are passed to the vehicle by ship's line handlers, as in b, figure J–3. The danger of thrown steadying-lines is eliminated by suspending the eyes of the lines over the center of the deck by means of heaving-lines from the opposite wing walls. The lines are placed as follows:

(1) Eye of line from starboard wing wall over the forward port mooring bitt.

(2) Eye of line from port wing wall over the after starboard mooring bitt.

c. Ship's line handlers then swing the vehicle clockwise in a 180° arc (c, fig. J–3). When the stern of the vehicle is facing forward in the well deck, crewmen shift the steadying-line from the port bow mooring bitt to the after port mooring bitt (d, fig. J–3). The vehicle is then pulled forward until it grounds on the ship's deck (e, fig. J–3). Once

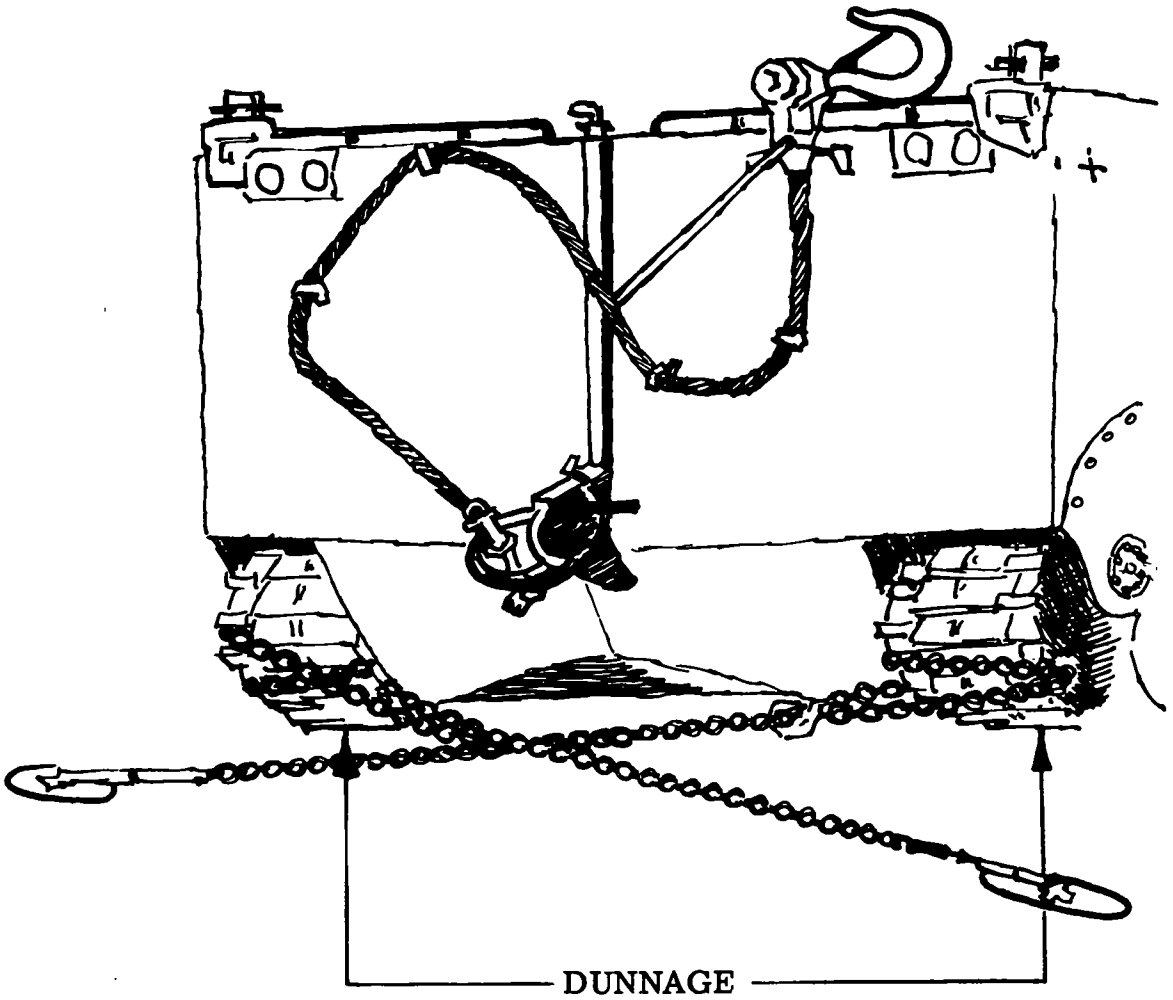


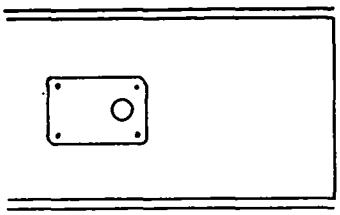
Figure J–2. LVT secured aboard the LST.

grounded, lines are cast off, and LVT's move to designated berthing spaces (f, fig. J–3 and fig. J–4). Vehicles are secured by dogging with chains and turnbuckles furnished by the ship.

J–5. Arm and Hand Signals

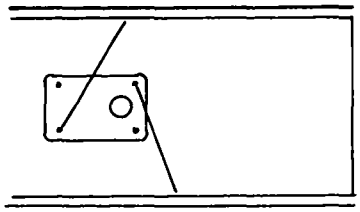
For a discussion of the arm and hand signals used for the control of amphibious vehicles, see FM 21–60.

(a)



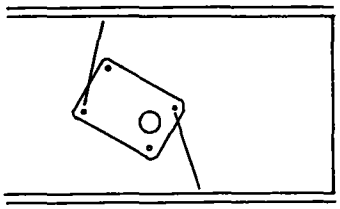
LVT will lock brakes upon crossing sill and coast into well

(b)



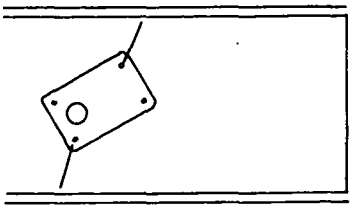
Lines will be received from LSD and secured on opposite sides of LVT

(c)



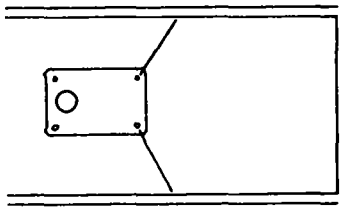
LSD line handlers will turn LVT clockwise while LVT is still afloat.

(d)



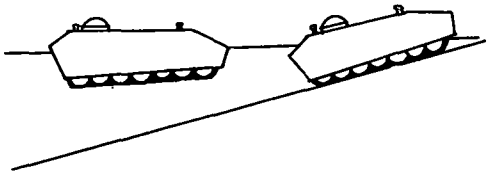
When LVT has swung to position shown shifts line on bow to after cleat. During rough weather steadying lines may be needed in which case line will not be shifted, but additional lines will be passed.

(e)



LVT will be hauled to point of touch down. LVT then shifts to reverse and backs up.

(f)



When LVT has touched down, back into parking area.

Figure J–3. Diagram of embarkation in LSD and LPD.

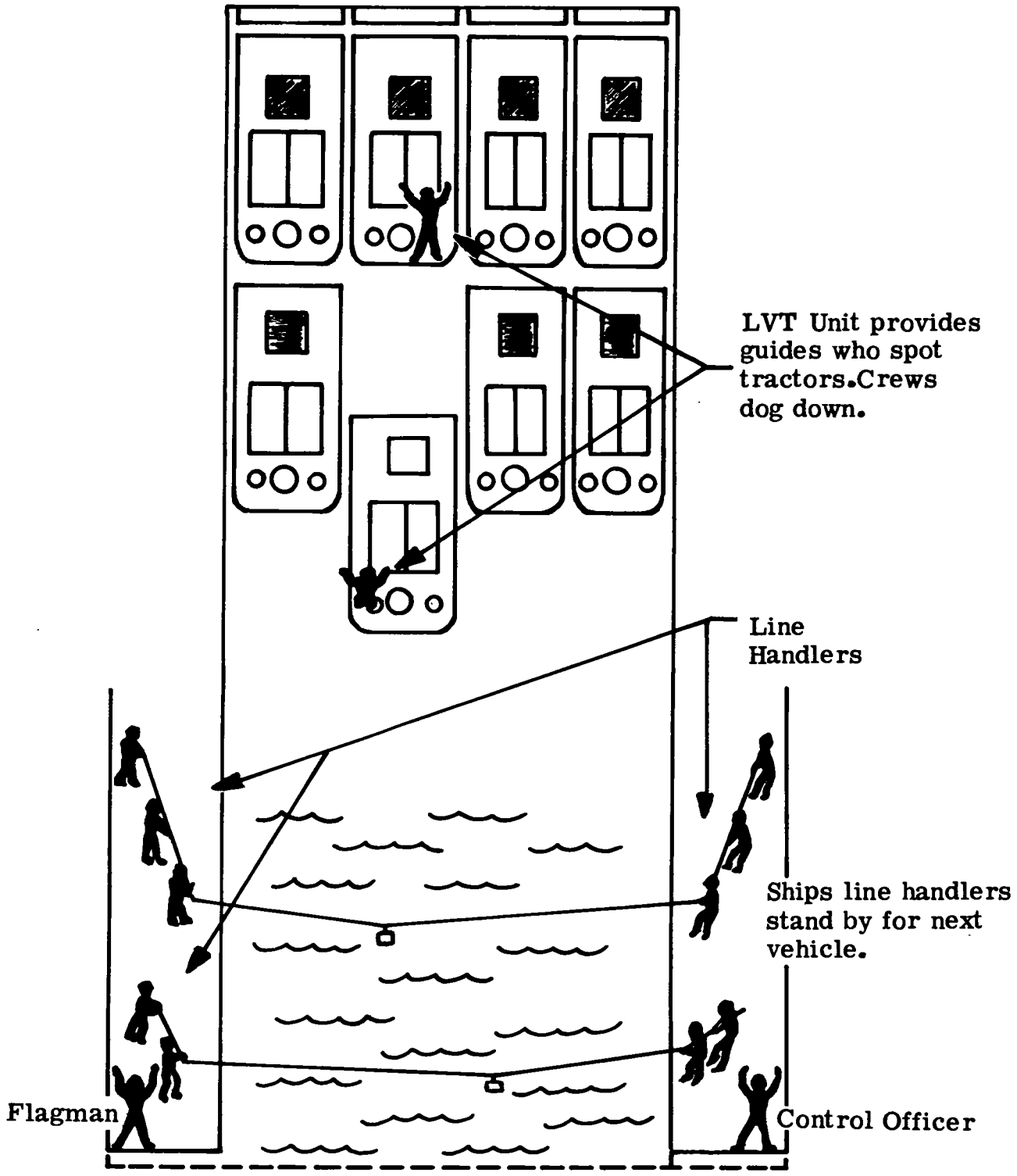


Figure J–4. LVT spotted in well deck of LSD.

APPENDIX K

DISABLED OR SINKING LVT

Section I. CHECKLIST FOR DISABLED LVT WITH ENGINE OPERATIVE

K–1. General

When an amphibious vehicle (LVT) becomes disabled while waterborne, but the main engine remains operative, every precaution is taken to safeguard the passengers and to move the vehicle safely to the beach. Passengers and crew welfare is always the primary consideration. An operative engine insures continued bilge pump operation and assists materially in the conduct of rescue operations.

K–2. Duties of the Crew

Duties of the amphibious vehicle (LVT) crew when the vehicle is disabled while waterborne, but with the engine still operative, include—

a. Amphibian Commander.

(1) Displays letter "N" flag during daylight. During darkness beams a spotlight or battle lantern vertically in the air.

(2) Supervises transfer of passengers to another amphibious vehicle or small boat, if possible.

(3) Contacts the beach rescue team by radio, when possible.

(4) Checks to insure that all hatches are closed.

(5) Uses all means at hand to effect repairs.

b. Amphibian Driver.

(1) Places vehicle transmission in neutral.

(2) Advances hand throttle to 2,000 rpm.

(3) Turns on auxiliary bilge pump.

(4) Turns fuel cell selector switch to full cells.

(5) Insures that radio is on.

(6) Remains in driver's seat pending other instructions from the commander.

c. Assistant Amphibian Driver.

(1) Assists in transfer of passengers to another amphibious vehicle or small boat, as directed by the commander.

(2) Stands by in the rear of the cargo compartment for instructions from the commander.

Section II. CHECKLIST FOR DISABLED LVT WITH MAIN ENGINE INOPERATIVE

K–3. General

When an amphibious vehicle is disabled while waterborne, and the main engine is inoperative, it is mandatory that attention be given by embarked passengers to the orders of the amphibian commander.

K–4. Duties of the Crew

Duties of the amphibious vehicle crew when the vehicle is disabled while waterborne, and the engine is not operative, include—

a. Amphibian Commander.

(1) Displays letter "N" flag during daylight. During darkness beams a spotlight or battle lantern vertically in the air.

(2) Supervises transfer of passengers to another amphibious vehicle or small boat, if possible.

(3) Contacts the beach rescue team by radio, if possible, informing them of the urgent nature and cause of the trouble, and the type of assistance desired.

(4) Checks to insure that all hatches are closed.

(5) Checks to insure that vehicle headlights are turned on during darkness.

(6) Uses all means at hand to effect repairs and/or rescue.

b. Amphibian Driver.

(1) Turns auxiliary bilge pump on.
(2) Turns auxiliary generator engine on, insuring that the exhaust cover is opened.
(3) Places vehicle transmission in neutral.
(4) Turns fuel cell selector switch to full cells.
(5) Prepares to attempt to restart the main engine on order of the commander.

c. Assistant Amphibian Driver.

(1) Assists in transfer of passengers to another amphibious vehicle or small boat, as directed by the commander.
(2) Closes discs and swing assembly (exhaust cover flaps) if they are open.
(3) Closes crew compartment blower cover when directed by the commander.
(4) Insures that the auxiliary engine exhaust cover is open while the auxiliary engine is operating.

Section III. CHECKLIST FOR SINKING LVT

K–5. General

When a waterborne amphibious vehicle is sinking, immediate and resourceful action is required of all aboard. Attention to orders of the amphibian commander is imperative and mandatory.

K–6. Duties of the Crew

Duties of the amphibious vehicle crew when the vehicle is sinking include—

a. Amphibian Commander.

(1) Gives the order to abandon the vehicle.
(2) Fires the distress signal (red-red star) in the air over the vehicle.
(3) Opens cargo and personnel compartment doors with the assistance of the assistant amphibian driver, if practicable.
(4) Expedites evacuation of personnel.
(5) Notifies the beach rescue team by radio, if possible.
(6) Leaves the vehicle when all other personnel have been evacuated.

b. Amphibian Driver.

(1) Turns on auxiliary bilge pump.
(2) Starts auxiliary generator, if time permits.
(3) Lowers the driver's seat and leaves the vehicle through the driver's hatch, when directed by the commander.

c. Assistant Amphibian Driver.

(1) Assists the commander in opening the cargo and personnel compartment hatches, when directed.
(2) Assists passengers moving through the hatches (figs. F–1 and F–2).
(3) Leaves the vehicle on order of the commander.

Section IV. RESCUE PROCEDURES FOR LVT

K–7. General

No fixed criteria can be established for the rescue of waterborne LVT's under all circumstances. The urgency of the situation aboard the vehicle, condition of the sea, number of passengers embarked, skill of the crew, and availability of rescue means are factors which influence each situation. Vehicles disabled in the surf zone fall under the cognizance of the LVT officer or NCO directing LVT operations. Actual rescue responsibilities are generally set forth in unit regulations and standing operating procedures.

K–8. Towing the LVT

As a general rule, LVT's are not towed through the surf zone except as a last resort. Should an LVT become disabled beyond the surf zone, repairs are attempted and, if unsuccessful, the vehicle is towed to the nearest ship. If a ship is not situated nearby, the vehicle is towed toward the surf zone. If the vehicle is disabled in the surf zone, repairs are attempted seaward of the surf zone, if possible. The vehicle is towed to the beach only as a last resort.

a. Towing Procedures. The following steps are followed in towing disabled LVT's in the water:

(1) The rescue vehicle is positioned in front of the vehicle to be towed.

(2) Two manila lines are utilized, secured to the two after bitts of the towing vehicle. Alternate towing means include a wire bridle or the bow tow cable of the disabled vehicle and the towing cable of the rescue vehicle.

(3) The free ends of the lines affixed to the bitts of the towing vehicle are crossed and passed to the disabled vehicle. The line from the port bitt of the towing vehicle is secured to the starboard bitt of the disabled vehicle, and vice versa with the other line (fig. K–1).

(4) One crewman remains on board the disabled vehicle to disengage or cut the towing lines if such action becomes necessary.

b. Preparing Disabled LVT for Towing. The crew of a disabled LVT takes the following action in preparing their vehicle for towing:

(1) *The LVT is disabled but the engine is operative.*

(*a*) Close all hatches.

(*b*) Open crew compartment vent cover.

(*c*) Place transmission in neutral.

(*d*) Advance hand throttle to 2,000 rpm.

(*e*) Turn on auxiliary bilge pump.

(*f*) Turn fuel tank selector switch to full cells.

(*g*) Turn radio on.

(*h*) Make all other necessary preparations for surfing.

(2) *The LVT is disabled and the engine is inoperative.*

(*a*) Close all hatches.

(*b*) Insure that the auxiliary engine is operating and the exhaust cover open.

(*c*) Open the crew compartment vent cover.

(*d*) Place transmission in neutral.

(*e*) Turn on auxiliary bilge pump.

(*f*) Turn radio on.

(*g*) Close cover assembly and discs, and swing assembly (exhaust cover flaps) on superstructure.

(*h*) Make all other necessary precautions for surfing.

K–9. Passing Through the Surf Zone

a. General Conditions. Towing LVT's with crews embarked through the surf zone may be safely accomplished, provided the following conditions are met:

(1) Surf conditions are not hazardous. See paragraph F–13 for LVT surfing criteria.

(2) The tow lines used are at least 40 feet in length and 2 inches in diameter, and proper towing procedures are used.

(3) The vehicle to be towed is prepared as outlined in paragraph K–8 above.

b. Passing Through Hazardous Surf. Procedures to be employed when it is necessary to tow vehicles through the surf zone when hazardous surf conditions exist are established by appropriate unit directive. Protection of the lives of personnel retains first priority in any such rescue attempt, followed by efforts to salvage disabled vehicles.

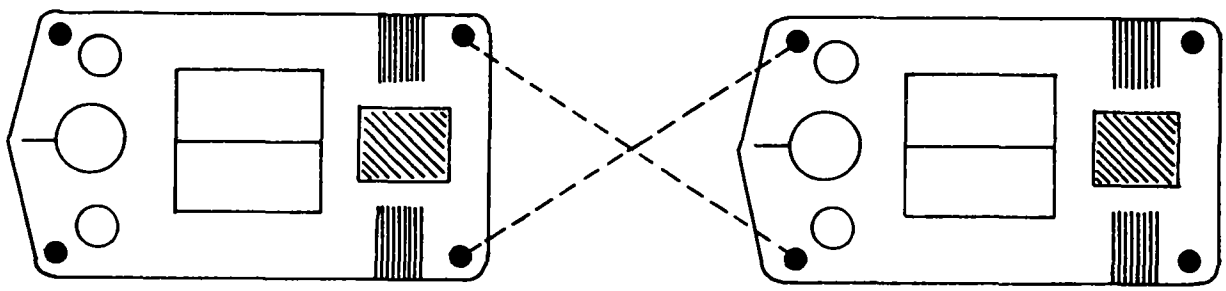


Figure K–1. Towing hitches utilized by one LVT to tow another.

APPENDIX L

DUTIES OF THE AMPHIBIAN COMMANDER, AMPHIBIAN DRIVER, AND ASSISTANT AMPHIBIAN DRIVER

L–1. General

The following paragraphs set forth recommended duties for commanders, drivers, and assistant drivers operating LVT's. This list of duties is offered as a guide. Modifications of the duties of each of these personnel may be made at the unit level as required.

L–2. General Duties of the Amphibian Commander

The commander of an LVT is directly responsible for the following:

a. Conduct of the crew.

b. Supervision of all vehicular inspections and servicing operations in accordance with existing directives and instructions.

c. Reporting malfunctions of the vehicle to proper authority.

d. Safety of crew and embarked troops.

e. Operation of the LVT regardless of who is driving.

f. Turning in tools and special equipment to the designated agency when they are not in use, so that adequate storage and protection are provided.

L–3. Special Duties of the Amphibian Commander

a. Before Operation.

(1) Inspect uniform and equipment of the crew. Insure that all personnel wearing the inflatable lifejacket have tested it for serviceability, and have serviceable CO_2 cartridges inserted.

(2) Supervise vehicular checks and maintenance; take reports from the crew.

(3) Check operation of the radio and interphones. Insure that proper radio procedure is used.

(4) Inspect cargo, insuring that it is properly stowed.

(5) Enforce all safety precautions.

(6) Check all on equipment materiel (OEM) to see that it is properly secured and accounted for.

(7) Report the LVT's condition to a designated officer or NCO.

b. During Operation.

(1) Assist the driver by observing operation of the vehicle and giving appropriate instructions.

(2) Observe the trim of the tractor.

(3) Observe operation of the bilge pumps.

(4) Man the machinegun, as required.

(5) Observe and carry out signals from section or platoon leader.

(6) Watch for and report floating debris, obstacles, and other vehicles or craft that may endanger his vehicle.

(7) Report LVT deficiencies to designated authority.

(8) Before water operation, complete the prewater operation checklist and deliver it to designated authority.

c. *At The Halt.*

(1) Supervise maintenance by the crew.

(2) Check the overall condition of the vehicle.

(3) Check cargo insuring that it is properly stowed.

d. After Operation.

(1) Supervise maintenance by the crew.

(2) Dismount, clean, and stow machineguns.

(3) Enforce all safety precautions.

(4) Record fuel and oil consumption, maintenance accomplished, vehicular malfunctions, and operational hours in the tracked vehicle daily log of the tracked vehicle book.

L–4. General Duties of the Amphibian Driver

The driver performs such general duties as directed by the commander or other authority.

L–5 Specific Duties of the Amphibian Driver

The driver of an LVT has the following specific duties:

a. Before Operation.

(1) Stand inspection.

(2) Check fuel, oil, and coolant levels.

(3) Inspect the engine compartment for fuel and oil leaks.

(4) Inspect all visible hydraulic lines.

(5) Inspect control linkage.

(6) Start the engine using correct procedure.

(7) Check instruments and accessories for proper functioning.

(8) Check the operating controls, engine operation, and transmission operation.

(9) Sound the horn prior to raising or lowerthe ramp.

(10) Report deficiencies to the LVT commander.

b. During Operation.

(1) Observe proper driving procedure.

(2) Observe and report floating debris, obstacles, or other obstructions.

(3) Report any malfunction of the vehicle to the commander.

c. At The Halt.

(1) Check for fuel, oil, and coolant leaks.

(2) Inspect the engine compartment for fuel and oil leaks.

(3) Check operating controls.

(4) Sound the horn prior to raising or lowering the ramp.

(5) Report deficiencies to the LVT commander.

d. After Operation.

(1) Observe proper engine stop procedure.

(2) Check instruments and operating controls.

(3) Check fuel, oil, and coolant levels.

(4) Inspect the engine compartment for fuel and oil leaks.

(5) Report oil and fuel consumption to the LVT commander and add either as necessary to bring it to the proper level.

(6) Lubricate necessary points in the engine compartment, bilge pumps, and driver's station.

(7) Change engine air cleaners, if necessary.

(8) Check batteries and electrical connections.

(9) Assist in refueling, as necessary.

(10) Sound the horn prior to raising or lowering the ramp.

(11) Report deficiencies to the LVT commander.

L–6. General Duties of the Assistant Amphibian Driver

The assistant amphibian driver performs such general duties as directed by the LVT commander or other authority.

L–7. Specific Duties of the Assistant Amphibian Driver

The assistant amphibian driver of an LVT has the following specific duties:

a. Before Operation.

(1) Stand inspection.

(2) Check hull and drain plugs.

(3) Check tow cable and quick release hitch.

(4) Check track and suspension system.

(5) Check drive sprockets.

(6) Check equipment stowed on the outside of the vehicle (boat hooks, boarding ladders, etc.).

(7) Serve as ground guide to insure that no one is in the vicinity of the ramp when it is raised or lowered.

(8) Report deficiencies to the LVT commander.

b. During Operation.

(1) Be on the alert for unusual noises or odors.

(2) Report vehicular malfunctions to the LVT commander.

c. *At The Halt.*

(1) Check the hull.

(2) Check track and suspension system.

(3) Check equipment stowed on the outside of the vehicle.

(4) Check tow cables and hitches.

(5) Check drive sprockets.

(6) Serve as ground guide to insure that no one is near the ramp when it is raised or lowered.

(7) Report any deficiencies to the LVT commander.

d. *After Operation.*

(1) Lubricate outside of the vehicle as prescribed by the lubrication guide.

(2) Check track and suspension system.

(3) Check drive sprockets for loose bolts or nuts.

(4) Check the hull and towing devices.

(5) Serve as ground guide to insure that no one is near the ramp during raising or lowering.

(6) Report any deficiencies to the LVT commander.

APPENDIX M

LOADING AND UNLOADING OF 105-MM HOWITZER IN AN LVTP5

M–1. General

This appendix discusses the procedures for loading and unloading the 105-mm howitzer in the LVTP5. Illustrations of the weapon embarked aboard are contained in figures M–1 and M–2.

M–2. Responsibility

Crews of LVTP5's are responsible for the readiness of the vehicle to receive the howitzer. The commander of the LVTP5 is responsible for inspecting and accepting the lashing and chocking of the howitzer, and for the safe transportation of the howitzer once it is loaded. Artillery unit personnel load the weapon into the LVTP5 and secure it. Crewmen of the LVTP5 assist if their other duties permit.

M–3. Equipment Necessary for Loading

The following equipment must be available for securing the howitzer in the LVTP5. This equipment should be furnished by the artillery unit.

a. One 3/8 to 1/2 inch chain or wire rope with turnbuckle (approximately five feet in length).

b. Four wooden chocks for wheels.

c. To facilitate loading it is recommended that the artillery unit furnish a portable tow hitch to be placed on the front of the prime mover (6x6, 2½ ton truck). This allows the driver of the prime mover maximum visibility.

d. Wooden blocks and bolts for holding howitzer out of battery. Use of a recoil extension bar assembly is recommended to lock the howitzer in the recoil position when the howitzer is to be loaded out of battery. This assembly is identified as FSN 1670–360–0242.

M–4. Sequence for Loading

The following sequence is set forth for actual loading of the 105-mm howitzer. Figure M–1 illustrates the howitzer out of battery, loaded in an LVTP5. Figure M–2 illustrates the howitzer in battery, loaded in an LVTP5.

a. LVTP5 Crew.

(1) Drop ramp.

(2) Remove troop seats and stow loose gear. Remove grill from radio cabinet and any maintenance tools which may be required in transit from stowage cabinet.

(3) Stand by to observe loading and maintain vehicle availability by preventing damage to the inside of the LVTP5.

(4) DO NOT REMOVE TRANSVERSE BULKHEAD as this will result in carbon monoxide poisoning of embarked personnel.

b. 105-mm Gun Crew.

(1) *Loading out of battery.*

(*a*) Position gun in front of the LVTP5 ramp.

(*b*) Remove cover from howitzer. The gun is most easily loaded if placed out of battery and blocked with wooden blocks behind the breech, with bolts through the cradle, or recoil extension bar assembly in place.

(*c*) Position prime mover behind gun and secure the portable tow hitch to lunette. Elevate tube of gun to insure clearing ramp.

(*d*) With prime mover, load the howitzer into the LVTP5. After the gun is past the hinged ramp extension plate the prime mover may be released from the gun.

(*e*) Place chain or wire rope through pad eye located on the overhead just forward of the gun turret of the LVTP5.

(*f*) Manhandle the howitzer toward the rear of the cargo compartment. At the same time the gun crew should pick up the trails to insure proper positioning of the muzzle.

(*g*) When the gun is in position in the rear of the cargo compartment, (tube against the transverse bulkhead), the gun crew lifts the trails and secures them to the pad eye with the chain.

(*h*) The chocks are then placed at the wheels to prevent movement. Gun brakes are locked.

(*i*) Close the ramp. LVTP5 is ready for movement.

(2) *Loading in battery.*

(*a*) Position gun in front of the LVTP5 ramp.

(*b*) Remove cover, take tube out of travel position.

(*c*) Position prime mover behind gun and secure the portable tow hitch to the lunette. Elevate tube of gun to insure clearing ramp.

(*d*) Move the gun up the ramp until it is past the hinged ramp extension plate, then release the prime mover.

(*e*) Remove lunette from trails, (trails are not spread), tube is traversed to extreme

Figure M–1. 105-mm howitzer out of battery loaded in LVTP5.

left and depressed to allow muzzle to fit in after starboard corner of the cargo compartment.

(*f*) Place chain or wire rope through pad eye located on the overhead just forward of the gun turret of the LVTP5.

(*g*) Manhandle the howitzer toward the rear of the cargo compartment, at the same time the trails are lifted to insure proper positioning of the muzzle.

(*h*) When in proper position in the cargo compartment the trails are lifted and secured to the pad eye. (Do not pass chain through lifting handles on the trails.)

(*i*) Emplace chocks and lock brakes on gun.

(*j*) Close the ramp. LVTP5 is ready for movement.

M–5. Unloading Procedure

The sequence listed in *a* through *g* below should be followed for unloading the 105-mm howitzer.

a. Drop the ramp.

b. Disengage the chain holding trails to the pad eye and release brakes on the gun.

c. Remove chocks.

d. Lower the trails. At the same time manhandle the howitzer toward the ramp.

e. When the wheels touch the hinged ramp extension plate drop the trails and replace the lunette, if removed while loading in battery.

f. Elevate gun tube and traverse to center if gun was in battery when loaded.

g. The prime mover is then moved to the ramp and hooked to the lunette, preferably with the

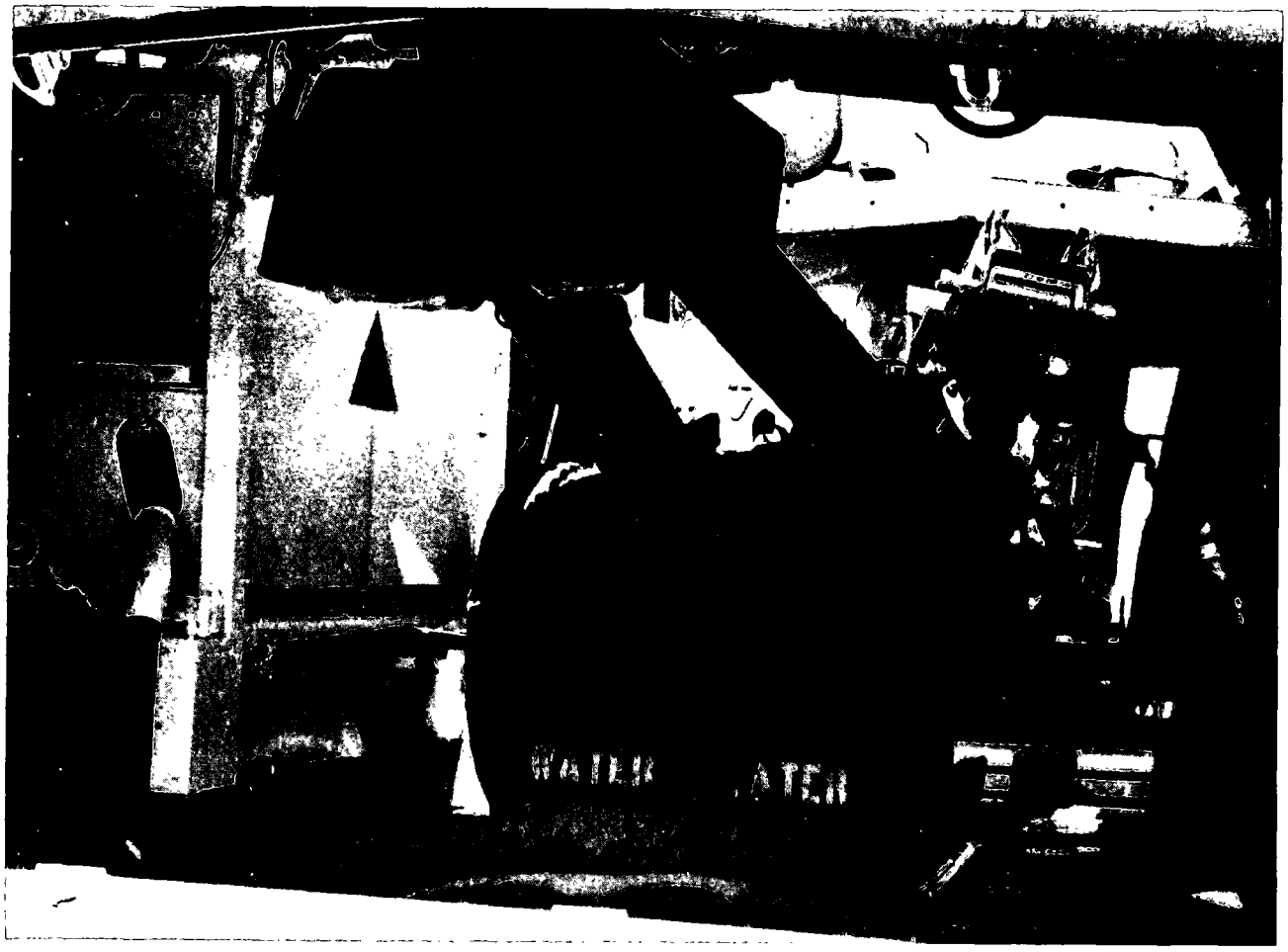


Figure M–2. 105-mm howitzer in battery loaded in LVTP5.

portable front tow hitch. The prime mover then pulls the howitzer out of the LVTP5. The howitzer may also be manhandled off the LVTP5 by the gun crew. If this technique is employed the howitzer brakes should be used during movement down the ramp.

M–6. Coordinating Instructions

The crew of the LVTP5 maintains constant observation of the aforementioned procedures to prevent any damage to the vehicle. Extreme caution should be maintained during loading and unloading procedures in order to eliminate hazards and to insure safety of personnel and equipment.

APPENDIX N

COMMUNICATION EQUIPMENT IN ENGINEER AMPHIBIOUS UNITS

Section I. RADIO COMMUNICATION EQUIPMENT IN THE LVT's

N–1. General

This section lists the radio sets installed in the LVT's of the engineer amphibious battalion; including the LVTP5, LVTC, LVTR, and LVTE. A graph showing the frequency range of each radio is shown in paragraph N–5.

N–2. Radio Description

a. AN/GRC–125.

Installed in LVTP5
Frequency modulated .....Voice
Frequency range .....30–75.95 mc
Range .....4.8–8 km (portable set)
11 km (vehicular set)

b. AN/VRC–53.

Installed in .....LVTP5 (Platoon leader's only), LVTE, and LVTR
Frequency modulated .....Voice
Frequency range .....30–75.95 mc
Range .....11 km

Note. There are also 4AN/VRC–53's mounted in the 4 LARC–V's organic to the engineer amphibious company.

c. AN/GRR–5.

Installed in .....LVTC
Amplitude modulated .....Voice, radio-telegraph, or MCW
Frequency range .....1.5–18 mc

d. AN/VRC–24.

Installed in .....LVTC
Amplitude modulated .....VHF/UHF
Frequency range .....225–399.9 mc
Range .....48–160.9 km

e. AN/VRC–47.

Installed in .....LVTC
Frequency modulated .....Voice
Frequency range .....30–75.95 mc
Range .....24–32 km

Section II. SHORE PARTY AND COMMAND AND CONTROL RADIO COMMUNICATION EQUIPMENT

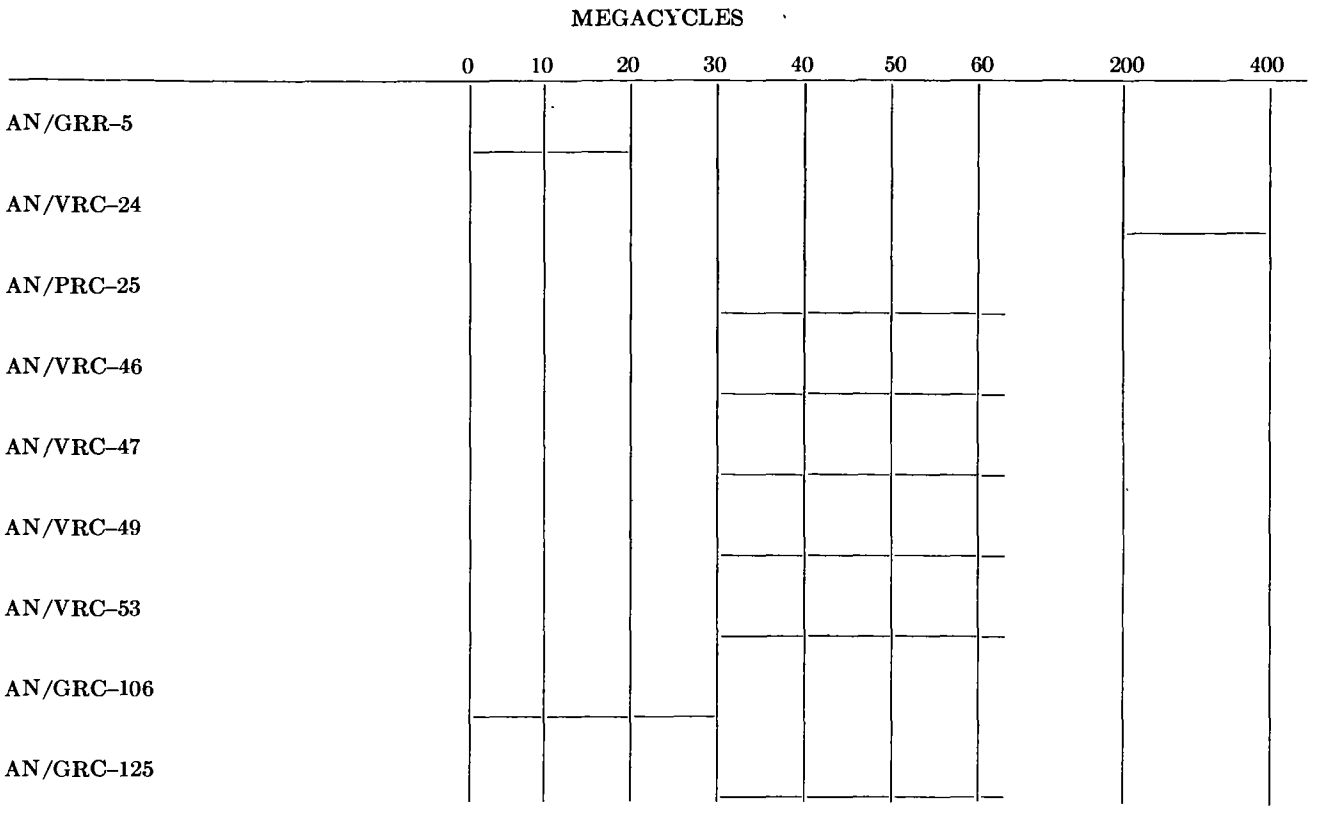
N–3. General

This section lists the radios organic to the various engineer amphibious units exclusive of those installed in the LVT's. These radios are used for command and control and for shore party and TAC–LOG operations.

N–4. Organic Radios

	AN/GRR–5	AN/GRC–106	AN/VRC–46	AN/VRC–47	AN/PRC–25	AN/VRC–49	AN/GRC–46	AN/GRC–125	AN/VRC–24
Engineer Amphibious Brigade (Headquarters & Headquarters Company)	1	3	4	15					
Engineer Amphibious Group (Headquarters & Headquarters Company)	2	2	1	5	6	2	1		
Engineer Amphibious Battalion:									
Headquarters & Headquarters Co.	1	1	4	10	5	1	1		
Engineer Amphibian Assault Co.	1		2					1	1
Engineer Amphibious Company	4	4	2	6	14	4	1	9	

N–5. Available Frequencies



Section III. WIRE COMMUNICATION EQUIPMENT IN THE ENGINEER AMPHIBIOUS UNIT

N–6. Wire Communications

Wire communication equipment for engineer amphibious units includes sufficient telephones, wire, switchboards and other equipment necessary for operations ashore.

N–7. Reference

For a detailed listing of this equipment, see the applicable TOE for the engineer amphibious unit.

APPENDIX O

EXAMPLE OF SHORE PARTY ACTIVATION ORDER

GENERAL ORDERS
NUMBER _____

DATE _____

ACTIVATION OF DIVISION SHORE PARTY

1. Effective (date), the _____ Division Shore Party is activated.

2. The following units and detachments are attached to the _____ Division Shore Party on dates indicated:

Unit or detachment designation	Effective date of attachment
a. 22d Direct Support Group (Fwd)	22 July 1965
b. 35th General Support Group (Fwd)	23 July 1965
c.	
d.	

(This list of attachments may be published as an inclosure to avoid a lengthy order.)

3. The _____ Division Shore Party is authorized to draw special items of equipment from _____ using this order as authority.

4. Colonel _____, (ASN), CE, is designated as _____ Division Shore Party Commander.

5. Training area, including (special area) is assigned to the _____ Division Shore Party.

FOR THE COMMANDER

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OFFICIAL TITLE BLOCK

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APPENDIX P

EXAMPLE OF SHORE PARTY PLAN TO OPERATION ORDER FOR AN AMPHIBIOUS OR SHORE-TO-SHORE OPERATION

(Not a Copy of Any Known Plan)

(Classification)

Copy No._____
Issuing Headquarters
Place of Issue
Date-Time Group
Reference No._____

ANNEX _____ (Shore Party Plan) to Operation Order _____

MAPS: (As appropriate)

Task Organization: (As appropriate)

1. SITUATION

a. Enemy Forces. (Refer to pertinent information in basic order.)

b. Friendly Forces. (Same as 1a.)

c. Attachments and Detachments: (Reference to general orders activating Shore Party.)

2. MISSION

_____ Division Shore Party lands over beach in _____ area on order in accordance with ANNEX _____ (Landing Plan).
Develops and operates beaches _____ to provide combat support and initial combat service support for landing of _____ Division (Reinf). Provides for organization and local security of beach support areas.

3. EXECUTION

a. Concept of Operation. Shore Party support for the Landing Force provides one shore party for the continuing support of each waterborne assault element landing over separate beaches. Each Shore Party will develop and operate a complete basic beach to support its respective Landing Force element. To provide for maximum utilization of communication and control Division SP Hqs will be located on _____ beach. Division Shore Party will be boated to provide landing by echelon in order to provide maximum support to the Landing Force. Shore Party commanders at all echelons will be in complete charge of their beach support area.

(Classification)

(Classification)

b. Division Shore Party Headquarters.

(1) Land on order over designated beach and establish Division SPCP. When established ashore assume control over all SP functions to effect coordination of shore party effort.

(2) Initiate development of the division beach support area to permit maximum over-the-beach support for the landing force by D plus _____.

(3) Coordinate with CG, _____ Arty Group (AD) for air defense of beach support area.

(4) Prepare plans to rehabilitate existing airstrips located in beach support area.

(5) Maintain liaison with Division Commander.

(6) Be prepared, upon dissolution of Division TAC–LOG, to assume similar operations ashore to maintain continuity of unloading operations.

(7) Prepare plans for the support of retraction and amphibious redeployment of Bde LT.

(8) Provide amphibious lift to Division assault elements.

(9) Phase-out on order.

(10) Be prepared to execute alternate plan. Appendix 9.

c. _____ BDESP.

(1) Land over Beach _____ on order in support of Bde LT _____.

(2) Exercise operational control over Shore Parties _____ and _____.

(3) Be prepared to rehabilitate existing airstrips in beach support area.

d. _____ BDESP.

(1) Land over Beach _____ on order in support of Bde LT _____.

(2) Be prepared to retract Bde LT _____ over Beach _____ for amphibious redeployment.

e. _____ BDESP.

(1) Land over Beach _____ on order in support of Bde LT _____.

(2) Land initial elements over Beach _____ pass through SP _____ and move to Beach _____.

(3) Provide Shore Party personnel to support in landing of Bde LT _____ over Beach _____ and the subsequent landing of Bde LT _____.

(4) Establish bulk POL system, through Beach _____, utilizing assault pipeline and collapsible storage tanks beginning on _____.

f. Coordinating Instructions.

(1) D-day and H-hour to be announced.

(2) Landing instruction ANNEX _____ (Landing Plan) to Operation Order _____.

(Classification)

(Classification)

(3) Bde SPs develop and operate respective beaches in accordance with Appendix 3 (Beach Development).

(4) All units responsible for local security. Shore parties coordinate defense plans with adjacent SP and other units upon landing. Appendix 4 (SP Defense Plan).

(5) Prepare and mark helicopter landing pads in the vicinity of each SP aid station and supply point.

(6) Maintain liaison with supported unit.

(7) Prepare plans and organize respective beaches for area damage control. See Appendix 8 (Area Damage Control Plan).

(8) Units and beach installations will be dispersed consistent with mission and nuclear considerations.

(9) Be prepared to assume control of LARC's and LVT's on order.

(10) Priorities for beach support area development.
  (a) Mine and obstacles clearance.
  (b) Beach roads, beach marking, dump areas, unloading points.
  (c) Information center, medical evacuation station, dewaterproofing and maintenance area.
  (d) Bulk POL installation.
  (e) Perimeter defense.
  (f) Water points.
  (g) Other beach activities.

(11) Be prepared to furnish engineer combat support as required within capabilities. SPCO's coordinate with Engineer of unit being supported. Annex _____ (Engineer) to Operation Order _____.

(12) Brigade Shore Party Headquarters will assume the functions of Division Shore Party Headquarters, if required.

(13) Be prepared to land on an alternate beach in accordance with _____ Annex _____ (Alternate Plan) to Operation Order _____.

(14) Be prepared to assist other units landing over respective beaches.

(15) Be prepared to implement shore party alternate plan, Appendix 9.

(16) Return cargo nets to ships expeditiously.

(17) Stress camouflage discipline.

(18) Prepare for passive defense against nuclear attack and CBR attack.

(19) Revert to control this headquarters on order.

4. ADMINISTRATION AND LOGISTICS

a. Personnel. Annex _____ (Personnel) to Operation Order _____.

b. Logistics. Annex _____ (Logistics) to Operation Order _____.

c. Embarkation. Annex _____ (Embarkation) to Operation Order _____.

(Classification)

(Classification)

d. Beach Evacuation. Appendix 5 (Medical Plan).

5. COMMAND AND SIGNAL

a. Signal.

(1) Annex _____ (Signal) to Operation Order _____.

(2) Appendix 6 (Signal Plan).

(3) Radio silence until lifted on Landing Force Order.

b. Command Posts.

(1) Afloat.

(a) Corps Shore Party Hq _____ (when applicable)

(b) Division Shore Party _____

(c) BDE SP _____

(d) BDE SP _____

(e) BDE SP _____

(2) Ashore.

Commanders select and report.

Acknowledge:

Maj Gen

Appendixes:

1. Task Organization
2. Beach and Hydrographic Study (if applicable) (omitted)
3. Beach Development Plan (overlay omitted)
4. Shore Party Defense Plan
5. Medical Plan
6. Signal Plan
7. Supply Point Operation Plan
8. Area Damage Control Plan
9. Shore Party Alternate Plan (omitted)
10. Reports
11. Civil Affairs Plan (if required) (omitted)
12. Psychological Operations Plan (if required) (omitted)

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Date-Time Group
Reference No._____

APPENDIX 1 (Task Organization) to ANNEX _____ (Shore Party Plan) to Operation Order _____.

DIVISION SP HEADQUARTERS
(Show Div SP elements and list organization of all Bde SPs in order.)

Acknowledge:

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Date-Time Group
Reference No._____

APPENDIX 3 (Beach Development Plan) to ANNEX _____ (Shore Party Plan) to Operation Order _____.

(This plan may be published as an overlay type plan.)

MAPS: Operation Order _____

1. SITUATION

a. Enemy Forces.

b. Friendly Forces.

2. MISSION

Division Shore Party elements land over beaches in the _____ area and develop beach support areas to provide maximum support to the landing force.

3. EXECUTION

a. Concept of Operations. The beach support areas will be developed to provide for rapid segregation of supplies and assembly of units for movement forward; traffic control, collection of prisoners of war and evacuation of patients; continuing administrative support to the Landing Force and security of the beach support area against waterborne, ground and air attack.

(Classification)

b. All Shore Parties.

(1) Initially clear mines and obstacles to provide for rapid movement of assault troops inland. As time permits expand mine and obstacle clearance to provide for beach installations.

(2) Develop exit and lateral roads within the beach support area and mark beaches.

(3) Establish and operate information centers to provide information to personnel coming ashore as pertains to units, equipment, shipping data and tactical situation.

(4) Establish and operate beach medical facilities to receive and evacuate patients from the Landing Force and provide medical services to the Shore Party and attached units.

(5) Establish and operate ordnance dewaterproofing and emergency maintenance area.

(6) Establish and operate PW collecting points for receipt and evacuation of prisoners.

(7) Establish and operate water supply points for the use of all troops in the beach support area.

(8) Reconnoiter for troop bivouac areas and vehicle parks.

(9) Establish perimeter security of the beach support area. Appendix 4 (Shore Party Defense Plan).

(10) Establish and operate transfer points to handle over-the-beach discharge of supplies and equipment.

(11) Establish and operate dumps and supply points in accordance with appendix 7.

(12) Collect, sort, and stack, for return to proper ships, all life preservers in the beach area. Life preservers may be retained in the beach area for use during reembarkation if owning ships do not have an immediate requirement for them.

(13) In conjunction with beach party commander, develop sites for beaching Landing Craft and Ships.

(14) Provide traffic control in Beach Support Areas.

(15) Establish and operate civilian collection points for protection and evacuation of civilians.

(16) Establish and operate supply points for civilian relief.

c. Coordinating Instructions. Priorities for beach support area.

(1) Mine and obstacle clearance.

(2) Beach roads, beach marking, dump areas, unloading points.

(3) Information center, medical evacuation station, dewaterproofing.

(4) Bulk POL installation.

(5) Perimeter Defense.

(6) Water Points.

(7) Other beach activities.

(Classification)

4. ADMINISTRATION AND LOGISTICS. ANNEX _____ (Logistics) to Operation Order _____.

5. COMMAND AND SIGNAL.

a. Signal. Appendix 6 (Signal).

b. Command Posts.

(1) Afloat. ANNEX _____ (Shore Party Plan).

(2) Ashore. Shore Party commanders locate and report.

Acknowledge.

Maj Gen

Tabs: A—(Beach Development Overlay) (Omitted)
B—(Traffic Circulation Plan) (If Not Shown on Beach Development Overlay) (Omitted)

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Date-Time Group
Reference No._____

APPENDIX 4 (Shore Party Defense Plan) to ANNEX _____ (Shore Party Plan) to Operation Order _____.

MAPS: Operation Order _____.

1. SITUATION

a. Enemy Forces.

b. Friendly Forces.

c. Assumptions. Enemy forces can:

(1) Penetrate beach support area with armored elements.

(2) Mount a guerrilla attack against beach support area.

(3) Infiltrate units or personnel into beach support area.

(4) Execute sabotage and subversive activities anywhere in the beach support area.

(5) Any combination of the above.

2. MISSION. Shore Party commanders will provide for the common defense of units, installations, and lines of communication in the beach support area and prepare to execute offensive missions in adjacent beach support area.

(Classification)

(Classification)

3. EXECUTION.

a. Concept of Operations. The defense of the beach support area is the responsibility of the shore party commander. He will assume operational control of all units therein in the event of enemy attack to control defensive activities. Defense is envisaged as defense by forces within the beach support area without the assistance of other forces. The defense system will provide an outpost line for early warning, close-in perimeter defense by units and installations and organization of mobile teams capable of rapid mobilization and movement.

b. All Shore Parties. Prepare plans for defense of respective beach support area.

c. Coordinating Instructions.

(1) SP's prepare plans for the defense of installations within respective beach support areas for submission to this headquarters prior to embarkation.

(2) SP's organize a mobile reserve utilizing LVT's, LARC's, trucks, and combat engineer vehicles.

(3) Limits of beach support area. Appendix 3 (Beach Development Plan).

(4) SP commanders coordinate with assault companies for relief of the infantry outpost positions to insure a continuous early warning system.

(5) SP commanders submit defensive overlays of their respective areas to Division Shore Party Headquarters by 1800 D-day indicating unit locations and crew-served weapons positions and report changes by 1800 daily thereafter.

(6) Maintain liaison with adjacent units.

(7) All units within beach support area maintain liaison with nearest Shore Party and advise the Shore Party of their location and strength by 1700 daily.

(8) Automatic weapons will be sited whenever possible to furnish air defense as well as ground fire.

(9) Shore party commanders coordinate with AD units within their areas to coordinate fires. ANNEX _____ (Air Defense Plan) to Operation Order _____.

(10) SP commanders will plot concentrations listed in Appendix _____ (Target Summary) ANNEX _____ (Fire Support Plan) to Operation Order _____ on their maps. To call for naval gunfire under emergency conditions, Shore Party will call through their beach party commander the direct support ship for the respective beach and request fire on concentration by number. Selective and restrictive application of firepower must be made in order to protect the civilian populace and its materiel resources. Appendix _____ (Naval Gunfire Plan) to ANNEX _____ (Fire Support Plan) to Operation Order _____.

(11) Pyrotechnic and smoke signals will be used as an auxiliary means of communication, ANNEX _____ (Signal) to Operation Order _____. Smoke for beach defense will be used only on order.

(Classification)

(Classification)

(12) Normal missions suspended only during full alerts.
(13) SP CO's appoint area security control officer.
(14) Foxholes will be dug in all bivouac areas and near worksites.
(15) ANNEX _____ (Fire Support Plan) to Operation Order _____.
(16) ANNEX _____ (CBR) to Operation Order _____.
(17) ANNEX _____ (Anti-Mechanized Plan) to Operation Order _____.
(18) ANNEX _____ (Air Defense Plan) to Operation Order _____.
(19) Enemy conditions for beach support areas are:
(a) Condition I.—All defensive positions are manned and supporting units alerted. All personnel in each BSA are available for defense. Mobile reserves standby in position. Evacuation of patients is expedited. Unloading operations cease. No vehicular traffic permitted except in emergency or to transport patients.
(b) Condition II.—Fifty percent of personnel, other than those in security sections, are made available for defense. Mobile reserves standby in position. Evacuation of patients is expedited. Unloading is reduced to essential items.
(c) Condition III.—Minimum defenses are manned as necessary to provide internal security and control of key terrain and routes of approach. Conduct normal shore party operations.
(20) Warning in clear by FLASH message to next higher headquarters and adjacent units followed by URGENT message giving details to Division SP Headquarters.

4. ADMINISTRATION AND LOGISTICS. ANNEX _____ (Logistics Plan) to Operation Order _____.

5. COMMAND AND SIGNAL

a. Signal.
(1) Appendix 6 (Signal Plan).
(2) Shore Party Command Net will be utilized for beach defense radio communications. All units within beach support area complete radio check at 1800 daily.

b. Command Posts.
(1) ANNEX _____ (Shore Party Plan).
(2) Div SP area defense control located at Div SP Headquarters.
(3) Subordinate SP CO's select and report.

Acknowledge.

Tab A—(Defense Plan Overlay) (Omitted)

Maj Gen

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Date-Time Group
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APPENDIX 5 (Medical) to ANNEX _____ (Shore Party) to Operation Order _____.

MAPS: _____.

1. SITUATION

a. Enemy Forces.

b. Friendly Forces.

2. MISSION. Establish and operate beach medical evacuation stations to receive and evacuate patients from Landing Force elements and provide aid for shore party personnel.

3. EXECUTION

a. All Shore Parties.

b. Coordinating Instructions.

(1) SP's establish aid and evacuation stations within respective beach support area.

(2) During initial assault phase, all patients unable to return to duty and transportable will be evacuated seaward.

(3) Nontransportable patients will be held in beach aid and evacuation station until rendered transportation.

(4) Coordinate evacuation of patients with beach party commander.

(5) Evacuation of enemy PW patients will be the same as for friendly forces except they will be segregated.

(6) Medical property exchange when possible, will be accomplished at all echelons.

(7) Medical supplies will, when possible, be exchanged at all echelons.

(8) Civilian patients. Emergency treatment only to save life when such action does not interfere with mission. Patients treated will be released to own care or delivered to civilian medical agency. (In internal defense operations, definite plans must be made for treatment and evacuation of civilian casualties.)

(9) Whole blood.

(a) Will be requisitioned by each medical unit and stocked in blood delivery boxes maintaining levels consistent with requirements.

(b) May be transferred between shore parties.

(Classification)

(Classification)

4. ADMINISTRATION AND LOGISTICS.

a. Annex _____ (Logistics) to Operation Order _____.

b. Sanitation.

(1) Troop commanders at all echelons will enforce maximum sanitary discipline commensurate with combat conditions.

(2) Disease of military importance that may be expected in the objective area: _____, _____ and minor intestinal disease.

(3) Information concerning preventive measures and sanitary procedures: _____.

(4) Insect repellent will be furnished by supply units to all units upon request.

(5) Iodine purification of local water supply will be utilized where water points have not been established.

c. Evacuation.

(1) En route.

(a) Subsequent to departure from port of embarkation, personnel requiring treatment aboard ship beyond the capability of the ship will be retained for transfer to designated hospital ship.

(b) Health of all embarked personnel is the responsibility of the ship's commanding officer.

(c) SP Med Personnel will render all practicable assistance to ship's Medical personnel as regards medical service for embarked troops.

(2) Landing and assault stage.

(a) From beaches.

1. Personnel requiring treatment during the ship-to-shore movement will remain in landing craft for return trip to parent ship.

2. Initially all patients will be evacuated by small craft via landing ship, tank, hospital (LSTH) for screening and distribution.

3. One LSTH will be provided off each numbered beach for emergency treatment and evacuation control.

4. LSTH's will be equipped for emergency treatment and sorting of patients prior to further evacuation. An Evacuation Control Officer will be embarked aboard each LSTH to screen all patients coming from beach and arrange for further evacuation to patient receiving ships.

5. LSTH's will be marked with a large white "H" amidships on both sides. When ready to receive patients it will fly an oversize MIKE flag, (Blue flag with a white cross), at night it will flash a green blinker light. A pontoon barge will be along side the bow ramp to serve as a loading ramp.

6. LSTH's will each have four ambulance boats at approximately H plus _____ minutes. One ambulance boat will be dispatched off each beach evacuation station.

(Classification)

(Classification)

7. When LSTH is released, patients will be evacuated directly to receiving ship on a scheduled basis.
8. Hospital ship, the _____ will be available on D + _____ to receive patients and provide specialist care.
9. Evacuation during assault may be by any craft designated by the shore party commander. Later, ambulance boats flying MIKE flag (Blue flag with a white cross) will be made available to the beach party commander.

(b) Ashore.

1. Shore party beach evacuation stations will be established to relieve assault troop battalion aid stations of beach aid and evacuation.
2. Beach aid and evacuation station operation and procedure: Normal means, refer to SP SOP, Med Sec.
3. Location and time of opening of actual beach aid and evacuation station will be reported to this headquarters, tentative locations of Shore Party Evacuation Stations see appendix 3 (Beach Development Plan).
4. PW patients will be evacuated to designated AKA.
5. Civilians will (not) be evacuated.

(c) Evacuation policy.

1. All patients requiring treatment beyond capacity of facilities ashore will be evacuated.
2. Upon establishment of hospital facilities ashore, a ten-day evacuation plan will go into effect.

(d) Air evacuation.

1. Fixed wing air evacuation by the Air Force will not be established initially. Air evacuation will be made on "availability" basis when airfields are placed in use.
2. Helicopter evacuation.
   (a) At approximately H + _____ hour, one Navy attack force ambulance helicopter will be available on each LSTH to be used for the shore-to-ship evacuation of emergency patients.
   (b) Helicopters will be used to the maximum extent possible for the shore-to-ship evacuation of seriously ill, injured, or wounded patients.
   (c) Request for Navy LSTH helicopters will be made to beach party commander.
   (d) In requesting helicopter, units will use the following classification system for indicating priority of patients. Class "A"—those requiring immediate evacuation for treatment. Class "B"—those requiring emergency surgery or medical treatment but whose condition will not be jeopardized by one to three hour delay. Class "C"—those requiring helicopter evacuation because of the nature of their injury. No emergency treatment necessary but smooth evacuation desirable.
   (e) Army helicopter ambulance control SP SOP, Med Section.

(Classification)

(Classification)

d. Hospitalization.
   (1) Beach evacuation stations will establish holding and emergency treatment facilities for the purpose of holding only until evacuation is achieved.
   (2) Beach evacuation stations will perform the collecting and clearing mission for SP troops.
   (3) Civilian hospitalization.
      (a) Assistance by landing force med units in accordance with the medical annex of the operation plan.
      (b) In counterinsurgency operations, medical service for the civilian populace will be rendered, and must be provided for in the medical annex of the operations plan.
   (4) Prisoners of war.
      (a) Normal evacuation.
      (b) Use captured medical personnel and supplies.

e. Medical Supply.
   (1) Initial supply 3 days plus 7 days in assault shipping.
   (2) Resupply—see Logistic Plan.
   (3) Captured medical supplies will be salvaged for the care of POW's.
   (4) Request for emergency resupply by airdrop to this headquarters.
   (5) Whole blood.
      (a) A minimum of 1 day's supply will be maintained at each supply point.
      (b) Initially, blood will be stocked by each medical unit in blood delivery boxes. Blood will be stocked aboard designated naval vessels, available to units on request.
      (c) Resupply will be obtained by informal request.
      (d) Blood will be delivered by medical supply points, consistent with transportation availability.
   (6) Property exchange at all echelons.
   (7) Medical supply points will be located within each supply point complex.

f. Services.
   (1) Preventive medicine survey and control available on call through command channels.
   (2) Laboratory. Within capabilities of hospital only.
   (3) Spectacles. No replacement expected until linkup with _____.
   (4) Dental. Emergency procedures only, within capabilities of units.
   (5) Dispensary type service.
      (a) Each medical facility will render area medical service within its capabilities.
      (b) Units operating without medical support will request same of the division surgeon through the nearest medical installation.

(Classification)

(Classification)

(c) Supported units will notify immediately the supporting medical unit of its arrival, unit strength and departure.

g. Medical Administration.

(1) Location of SP surgeon.

(a) Afloat:

(b) Ashore:

(2) Evacuation Reports: Appendix _____.

5. COMMAND AND SIGNAL

a. Signal.

(1) Appendix 6 (Signal Plan).

(2) Radio silence until lifted on Landing Force Order.

b. Command Posts. SPs report location of medical installations to Div SP Headquarters.

Acknowledge.

Maj Gen

DISTRIBUTION: ANNEX _____ (Distribution)

OFFICIAL:

G4

Copy No._____
Issuing Headquarters
Place of Issue
Date-Time Group
Reference No._____

APPENDIX 6 (Signal Plan) to ANNEX _____ (Shore Party Plan) to Operation Order _____.

MAPS:

TIME ZONE: Uniform for Operations, Zulu for message traffic.

TASK ORGANIZATION:

1. SITUATION.

a. Enemy forces.

(1) ANNEX _____ (Intelligence) to Operation Order _____.

(2) The enemy has the capability to:

(a) Monitor radio transmission and analyze traffic.

(b) Employ electronic jamming on radio and radio relay circuits.

(c) Introduce false communication to prevent or delay delivery of authentic messages.

(d) Exploit communication security of our forces.

b. Friendly forces.

(Classification)

(Classification)

2. MISSION. Establish and operate Division Shore Party communication system.

Establish and operate Division SP terminals of a _____ channel radio relay system from designated Brigade SPs.

3. EXECUTION.

a. Par 3, ANNEX _____ (Shore Party Plan).

b. Radio will be the primary means of continuous communications during the initial phase of operation and until the full Division Shore Party Communication System is completed ashore.

c. Division Shore Party Headquarters.

(1) Afloat.

(a) On order, activate Division Shore Party Net _____ as NCS. Operators to be furnished by Division SP. Equipment furnished by Navy when available.

(b) On order, establish Division SP _____ Net. Monitor Bde SP nets as follows: Bde SP _____ ; Bde SP _____ ; Bde SP _____. Operators furnished by Division SP. Equipment furnished by Navy when available.

(2) Ashore.

(a) Expand initial communication system to complete Division SP Communication System (Signal portion of landing force).

(b) Establish Signal Supply and Signal Maintenance Section. Initiate maintenance service to shore parties.

(c) Establish photo service within capabilities.

(d) Establish Division SP terminal end of Radio Relay Circuit to Bde SP _____ and Bde SP _____.

(e) Establish and maintain station in Corps SP Command Net.

(f) Provide entry into Shore Party Communication System for all attached units.

(g) Establish and maintain station in Division Command Net; Division Net; and monitor Division Warning Net.

d. Bde SP _____.

(1) Provide communications within beach support area. (Signal Company SOP.)

(2) Establish and operate terminal in Radio Relay circuit from Division SP.

(3) Provide necessary wire communication to _____ Beach.

e. Bde SP _____. Provide communications within beach support area. (Signal portion of landing force SOP.)

f. Bde SP _____.

(1) Provide communications within beach support area. (Signal portion of landing force SOP.)

(Classification)

(Classification)

(2) Establish and operate terminal in Radio Relay circuit from Division SP.

g. Coordinating instructions.

(1) Shore Party Communication System.

(a) Shore Party attached units requiring entry into the shore party communication system will contact the signal officer at the Bde or Division Shore Party Signal Center.

(b) Request for sole-user or point-to-point circuits will be made to Division SP Signal Officer.

(c) Shore Party Signal Centers will report all communication established to units in area to Division SP Signal Officer by most expeditious means.

(d) On order, priority of use will be given to area damage control functions.

(2) Message Center.

(a) Scheduled motor messenger service will be provided by Division Shore Party communication section to operate between Division SP Hq and each Bde SP Hq.

(b) Local messenger service at each shore party headquarters will be provided by using units.

(3) Radio.

(a) Radio silence will be maintained until lifted by order CJATF.

(b) Radios will be given operational and frequency checks upon lifting of radio silence.

1. Upon completion of testing, radio operators will maintain a listening watch upon preassigned frequency until Net is activated by NCS.
2. Stations will not leave assigned net without permission of NCS.
3. HST will enter Division SP Net, when required, by switching from HST Net.

(c) Attempt by enemy to employ jamming or imitative deception will be reported immediately to Division SP Signal Officer.

(d) Radio frequencies, call signs, and call words. SOI–SSI _____.

(e) Tab A (Radio Net Diagrams).

(f) Maximum use will be made of long wire antennas for SM equipment, _____ antenna for FM equipment, and any other means by which the transmission range may be increased, as required.

(g) Operationally check and calibrate all radio equipment prior to waterproofing and embarkation.

(h) Bde SP's.

1. Provide operators and radio equipment for respective Beach Primary Control Vessel. (Signal Company SOP.)
2. Enter Division SP Net on order.
3. Monitor Division Warning Net.

(4) Wire.

(a) Tab B (Wire and Radio Relay Diagram).

(b) Telephone Directory Names and Numbers. SOI–SSI _____.

(Classification)

(Classification)

(c) Normal wire communications will be established by all units as soon as practicable after landing.
(d) Wire circuits in the beach support area will be placed overhead or buried and as far removed from beaches access roads as practicable.
(e) Bde SP's will terminate the TAC–LOG Wire Circuit installed and maintained by BMU and provide telephone service to BMU.
(f) Bde SP's will terminate wire circuits from supported brigades.

(5) Waterproofing all communication equipment prior to landing over beaches with subsequent dewaterproofing.
(6) Synchronize watches with ship's clocks prior to debarkation.
(7) Dig in communication installations ashore and maintain camouflage discipline.
(8) Visual and Sound; Authentication Tables and Instructions; Cryptographic Instructions; Message Preparation; and Electronic Warfare. ANNEX _____ (Signal) to Operation Order _____.

4. ADMINISTRATION AND LOGISTICS. ANNEX _____ (Logistics) to Operation Order _____.

5. COMMAND AND SIGNAL.

a. Signal. ANNEX _____ (Signal) to Operation Order _____.

b. Command Posts. ANNEX (Shore Party Plan).

Acknowledge:

Maj Gen

Tabs: A—Radio Frequency Plan (Omitted)
B—Wire and Radio Relay Diagrams (Omitted)

DISTRIBUTION: ANNEX (DISTRIBUTION)

OFFICIAL:

Copy No._____
Issuing Headquarters
Place of Issue
Date-Time Group
Reference No._____

APPENDIX 7 (Supply Point Operation Plan) to ANNEX _____ (Shore Plan) to Operation Order _____.

MAPS:

1. SITUATION:

a. Enemy Forces.

b. Friendly Forces.

(Classification)

(Classification)

c. Assumptions.

(1) Bde LT's will be unable to carry ashore all of their initial _____ day supply.

(2) Landing Force to be supplied by beach support area installations for a period of approximately _____ days.

2. MISSION. Provide a continuous flow of all classes of supplies and equipment to the Landing Force and build up prescribed levels as shown in Annex _____ (Logistics).

3. EXECUTION.

a. Concept of Operation. Supplies loaded on amphibious carriers may or may not move directly to using units, plan for unloading will dictate. Supplies will be taken to inland supply points, maintaining a minimum of 3,500 meters between installations. Shore Parties will be responsible for over-the-beach movement, security, control and accounting of all supplies and equipment.

b. Bde SP _____. (Necessary instructions to all Shore Parties.)

c. Bde SP _____.

d. Bde SP _____.

e. Coordinating Instructions.

(1) Those items of the Bde LT's initial _____ day supply that cannot be carried ashore by the Bde LTs will be packed and marked sufficiently to insure rapid segregation. Sufficient personnel from Bde LT's will remain with their shore party until these items have been segregated and moved from the beach support area.

(2) Supply points will be separated by a minimum of 3,500 meters and supplies within supply points will be dispersed to maximum.

(3) Shore Party transportation normally will not be used for delivery of supplies to Landing Force elements, except for delivery of emergency supplies to airfield for airlift.

(4) Helicopter landing pads will be designated and marked near each supply point. See appendix 3 (Beach Development Plan).

(5) Adequate provision will be made for security of supply points and fighting of fires.

(6) Reports will be submitted in accordance with appendix 10 (Reports).

(7) Supplies in excess of those carried by assault units which are mobile-loaded on cargo trucks will be unloaded immediately to release the vehicles for other use.

(8) Shipping must be unloaded as rapidly as possible to take advantage of favorable weather conditions.

(9) _____ days of supplies will have to be handled in the beach support area.

(Classification)

(Classification)

4. ADMINISTRATION AND LOGISTICS.

a. Personnel. Annex _____ (Personnel) to Operation Order _____.

b. Logistics. Annex _____ (Logistics) to Operation Order _____.

5. COMMAND AND SIGNAL.

a. Signal.

(1) Annex _____ (Signal) to Operation Order.

(2) Appendix 6 (Signal Plan).

b. Command Posts. Annex _____ (Shore Party) to Operation Order _____.

Acknowledge:

Maj Gen

DISTRIBUTION: ANNEX Y (Distribution).

OFFICIAL:

G4

Copy No._____
Issuing Headquarters
Place of Issue
Date-Time Group
Reference No._____

APPENDIX 8 (Area Damage Control Plan) to ANNEX _____ (Shore Party) to Operation Order _____.

MAPS: _____

1. SITUATION

a. Enemy Capabilities.

(1) ANNEX _____ (Intelligence) to Operation Order _____.

(2) Likely Targets.

(a) Supply Points.

(b) LST Landing Area.

(c) Congested areas in beach support area.

(d) Bulk POL installation.

b. Friendly Forces.

c. This plan is initiated under authority of the Commanding General, _____ Division and in consonance with Annex _____ (Area Damage Control Plan) to Operation Order _____.

d. Assumptions: Enemy forces can:

(1) Employ nuclear weapons.

(Classification)

(2) Initiate CBR operations within the beach development area.

(3) Conduct subversive or sabotage action.

(4) Any of the above or combination thereof constitutes a serious condition within the beach development area.

2. MISSION

a. Division Shore Party conducts area damage control in the beach support area to minimize the effects of mass destruction weapons and to allow units and/or personnel of the shore party not engaged in damage control to carry out assigned mission.

b. Command.

(1) The _____ is designated as the Division Shore Party Area Damage Control Officer. He will function as overall supervisor and coordinator of the activities within the damage control sectors of the beach development area.

(2) The _____ of subordinate shore parties are designated as sector Damage Control Officers for their respective beach development area sectors. Alternate Damage Control Officers will be designated for each sector and reported to this headquarters.

(3) Shore party commanders will prepare ADC plans and establish organizations within their assigned sectors in accordance with the concept and procedures outlined herein. They will automatically undertake reconnaissance of mass destruction damage areas in adjacent sectors and be prepared to provide support and supervision in those areas as required.

c. Location. An area damage control center (ADCOC) will be located in vicinity of each shore party commander's CP. Alternate ADCOCs to be located and reported to this headquarters.

d. Commanders. Commanders of company and larger size units are responsible for:

(1) Immediate remedial action within capabilities, in damaged or threatened areas.

(2) Report to ADCOC Headquarters by fastest means available, to include estimated damage, size of force necessary to correct the situation, and casualties inflicted, both personnel and equipment.

(3) Necessary initial action to re-establish any installation or service destroyed.

e. Communications.

(1) Established command communications channels will be utilized for area damage control purpose.

(2) Operators of radio and telephone will be instructed to give precedence to all calls concerning area damage.

(Classification)

3. EXECUTION

a. Concept of Operation.

(1) Organization for area damage control will be such that initial action in response to mass destruction weapons damage is decentralized and requires a minimum of command action.

(2) Response to other type area damage will be by normal command action. Only after such action of locally effected units is determined to be inadequate, will ADC, initiate action.

(3) In the event of an attack, normal shore party missions will continue. Heavy rescue squads and other troops for area damage control missions will be organized from manpower available that least interferes with these missions.

(4) Unless otherwise directed, assistance to civilians will be limited to advice and aid in organization, for coordinated civilian damage control.

b. Shore Parties.

(1) Organize a minimum of one light rescue squad, two labor squads and one medical and surgical team. Detailed organization of these units in Annex _____ (Area Damage Control) to Operation Order _____.

(2) Establish an adequate warning system for rapid dissemination of warning to all troops.

(3) Provide alternate locations of critical CPs and installations.

(4) Be prepared to furnish assistance to adjacent areas as required.

c. Coordinating Instructions.

(1) Pre-organization for area damage control will provide for automatic dispatch of:

(a) MP team to damage area to control refugees and reroute military traffic.

(b) Light rescue squads, reinforced with organic medical personnel, to initiate casualty rescue, first aid and collection.

(c) Command post and reconnaissance element to establish a local damage control CP, evaluate and report the situation, and determine requirements for additional troops.

(d) Predesignated chaplain(s) to provide a spiritual ministry.

(2) Heavy rescue missions will be assigned as unit missions to engineer platoons or companies as required. Normal use will be made, through command channels, of other units to reinforce the damage control action as requested by the local ADCOC, such as:

(a) Firefighting teams _____ Firefighting.

(b) Medical units _____ Treatment, collection, ambulance service.

(c) Engineer units _____ Restoration of military roads.

(d) Graves Registration units _____ Collection and burial of dead.

(3) In the event no instructions are received the policies and procedures of this appendix will guide.

(Classification)

(4) Commanders be prepared to assume control of adjacent areas on order.

4. ADMINISTRATION AND LOGISTICS

a. General.

(1) Automatic issue to damage control teams in the event this plan is put into effect.

(2) All units in the beach development area will honor requests for supplies and equipment from damage control teams.

(3) Water. All units having organic water supply equipment available will be prepared to furnish on-call, necessary equipment to damage control teams.

(4) Salvage.

(a) Salvage collection points will be established in the vicinity of damaged areas for the collection of all types of equipment and supplies.

(b) Small quantities of contaminated equipment and supplies may be decontaminated by salvage collection point personnel (second-echelon decontamination); quantities beyond their capabilities may be decontaminated by decontamination personnel of the chemical company (direct support) (third-echelon decontamination).

b. Evacuation and Hospitalization.

(1) Evacuation. Established beach aid and evacuation facilities will be utilized for the evacuation of patients.

(2) Holding areas. Plans will provide for adequate patient holding facilities on each beach.

c. Transportation.

(1) Traffic control. Commanders will be prepared to designate alternate routes to and from beach installations in the event main routes become impassable.

(2) Request for transportation. Commanders will be prepared to furnish medical evacuation teams all transportation requested in the event mass evacuation becomes necessary.

d. Service.

(1) Firefighting. Firefighting teams located in each beach area will report to and operate directly under the ADC officer during area damage alerts.

(2) Decontamination. Chemical direct support units of the Division Shore Party will be prepared to establish and operate decontamination stations as directed.

(3) Ordnance. Ordnance EOD teams will be on-call for technical assistance to ADC officers in beach support areas.

e. Personnel.

(1) Military police.

(a) In the event additional Military Police assistance becomes necessary, requests will be made to the ADC officer of the area concerned.

(Classification)

(b) Military Police will establish control posts in damaged area to prevent unauthorized entrance and exit of vehicles and personnel.

(2) Mass burials.

(a) Mass burials of friendly, enemy and/or civilian dead will be performed only on order of this headquarters when authorized by the theater commander.

(b) Normal search and identification procedures will apply.

f. Civil Affairs. Civilian Control. See civil affairs plan.

Acknowledge:

Maj Gen

TAB:

A-Medical Plan (Omitted)

DISTRIBUTION:

OFFICIAL:

G4

Copy No._____
Issuing Headquarters
Place of Issue
Date-Time Group
Reference No._____

APPENDIX 10 (Reports) to ANNEX _____ (Shore Party Plan) to Operation Order _____.

Disposal Instructions: Reports to be filed in separated folders and maintained up-to-date. Upon relief of Division Shore Party, files will be turned over to relieving unit.

1. Shore Party Reporting: When control is assumed ashore by Division SP the reports shown herein will be submitted by Bde SP's to Division SP HQ as scheduled. Until Division SP assumes control, operational spot reports only will be submitted as necessary. All report forms may be locally reproduced.
2. Time of Submission: Initial reports submitted as of 1200 hours, thereafter as shown on reports schedule. All reports to arrive Division SP HQ prior to 4 hours after report period.
3. Transmission: Reports will be transmitted electronically only when distance or tactical conditions preclude delivery of written reports on time. Such reports will be followed by written reports as soon as conditions permit. Use Column and Line identification when transmitting by electronic means.
4. Other Reports: Other reports to supported tactical unit as directed by that unit.
5. Reports Schedule:

(Classification)

(Classification)

Report	Reporting Unit	As of Time
Equipment Availability	Bde SP	6 hour intervals
Supply Point Report	Bde SP	6 hour intervals
Vessel Status Report	Bde SP	6 hour intervals
Hospital and Evacuation	Bde SP	6 hour intervals
Situation Report	Bde SP	6 hour intervals

Acknowledge:

Maj Gen

TABS: A—Equipment Availability Report
B—Supply Point Report
C—Vessel Status Report (Used for resupply shipping)
D—Hospital and Evacuation
E—Situation Report

DISTRIBUTION: ANNEX _____ (Distribution)

OFFICIAL:

G4

TAB A (Equipment Availability Report) to Appendix 10 (Reports) to ANNEX _____ (Shore Party) to Operation Order _____.

EQUIPMENT AVAILABILITY REPORT

Report No. _____
As of _____
(date time above)

UNIT:

Type Vehicle & Size	ASGD (Col A)	AVAIL (Col B)
1 Truck ¼ ton		
2 Truck ¾ ton		
3 Trailer Water		
4 Truck 2½, cargo		
5 Truck 2½ ton dump		
6 Truck 5 ton dump		
7 Truck Tractor		
8 Semi Trailer 25 ton		
9 Compressor Air Trk Mtd		
10 Dozer D–8		
11 Dozer D–7		
12 Grader motorized		
13 Crane Truck mtd		
14 Crane Crawler mtd		

(Classification)

CLASSIFICATION

15 Tank M–48 or M–60 _____
16 LVTP5 _____
17 Truck, 1,200 gal, water _____
18 Truck, 1,200 gal, fuel _____
19 Truck, w/Semitrailer, fuel 5,000 gal _____
20 Truck, 2½ ton, Amphibious _____
21 Ambulance, ¾ ton _____
22 Other _____

_____
Officer in Charge

★TAB B (Supply Point Report) to Appendix 10 (Reports) to ANNEX_____ (Shore Party) to Operation Order _____

SUPPLY POINT REPORT

Supply Point No. _____
(Beach Color & Supply Point No.)

As of _____
(date time)

Report No. _____

(Items in tons except water, missiles, special weapons, and repair parts.)	Col A Previous Balance	Col B Received	Col C Issued	Col D On Hand
1. CLASS I (Subsistence)				
R —Refrigerated subsistence				
S —Non-refrigerated subsistence				
C —Combat rations				
Water (in gals)				
2. CLASS II (Clothing, individual equipment, etc.)				
B —Ground support materiel				
E —General supplies				
F —Clothing and textiles				
M —Weapons				
T —Industrial supplies				
3. CLASS III (POL) (Pkgd only)				
A —Air				
W —Ground				

CLASSIFICATION

CLASSIFICATION

(Items in tons except water, missiles, special weapons, and repair parts.)	Col A Previous Balance	Col B Received	Col C Issued	Col D On Hand
4. CLASS IV (Construction materials)				
5. CLASS V (Ammunition)				
A —Air				
W —Ground				
6. CLASS VI (Personal Demand Items)				
7. CLASS VII (Major End Items)				
A —Air				
B —Ground support materiel				
D —Administrative vehicles				
G —Electronics				
K —Tactical vehicles				
L —Missiles				
M —Weapons				
N —Special weapons				
8. CLASS VIII (Medical materiel including Medical Peculiar Repair Parts)				
9. CLASS IX (Repair Parts)				
A —Air				
B —Ground support material				
D —Administrative vehicles				
G —Electronics				
K —Tactical vehicles				
L —Missiles				
M —Weapons				
N —Special weapons				
T —Industrial supplies				
10. CLASS X (Materiel to support non-military programs)				
11. TOTALS:				
a. CLASS I				
b. CLASS II				
c. CLASS III				
d. CLASS IV				
e. CLASS V				
f. CLASS VI				
g. CLASS VII				
h. CLASS VIII				
i. CLASS IX				
j. CLASS X				

CLASSIFICATION

CLASSIFICATION

12. BULK POL (in gallons) (Col A) Nomenclature	Col B Previous Balance	Col C Received	Col D Issued	Col E Remaining in Tank Farm
a. MO GAS				
b. 80/87 Octane AV GAS				
c. 91/98 Octane AV GAS				
d. 100/130 Octane AV GAS				
e. Jet Fuel				
f. Diesel				

13. a. Items in Short Supply (List):
   (1) _____
   (2) _____
   (3) _____

b. Losses due to enemy action:
   (1) Class I _____ tons
   (2) Class II _____ tons
   (3) Class III _____ gals
   (4) Class IV _____ tons
   (5) Class V _____ tons
   (6) Class VI _____ tons
   (7) Class VII _____ tons
   (8) Class VIII _____ tons
   (9) Class IX _____ tons
   (10) Class X _____ tons

c. Remarks: (State here critical shortages of personnel, equipment and vehicles, and any unusual event that affected operation of dump.)

_____
Officer in Charge

CLASSIFICATION

(Classification)

TAB C (VESSEL STATUS REPORT) TO APPENDIX 10 (REPORTS) TO ANNEX_____(SHORE PARTY) TO OPERATION ORDER_____

VESSEL STATUS REPORT REPORTING UNIT STATUS AS OF HOURS

VESSEL	ARRIVAL TIME	ETD OR DEPARTURE TIME	TOTAL CARGO ON ARRIVAL SUPPLIES IN S/T			DISCHARGED DURING PERIOD SUPPLIES IN S/T			REMAINING ABOARD SUPPLIES IN S/T		
			I / II&IV	III / V	Vehs / Pers	I / II&V	III / V	Vehs / Pers	I / II&V	III / V	Vehs / Pers
TOTALS											

Note--To be used when resupply shipping arrives.

TAB D (Hospital and Evacuation Form) to Appendix 10 (Reports) to ANNEX _____ (Shore Party) to Operation Order _____.

HOSPITAL EVACUATION FORM

_____
Date/Time

_____
(Reporting Unit)

_____
(Location)

_____
(Period of Report)

(1)	Total	Army	PW	Civ	Other	Remarks
On Hand-Start Period						
Rec fr Other Sources						
Evacuated: By Air						
By Water						
Returned to Duty						
Died						
On Hand-End Period						

(2) This section of the report will be utilized to report losses of major items of medical equipment. Report will include information as to expected time of replacement items.

(Classification)

(Classification)

(Signature)

TAB E (Situation Report) to Appendix 10 (Reports) to Annex _____ (Shore Party) to Operation Order _____.

SITUATION REPORT

SITREP NUMBER _____ PERIOD COVERED _____ to _____
(Date & Time)

1. PERSONNEL AND ADMINISTRATION:

a. Unit Reporting: _____

b. Location: _____
(Coordinates)

c. Personnel Strength: _____ Off, _____ WO, _____ Enl

d. Casualties during period: (This section transmitted in writing only)

NAME	RANK	STATUS

e. Personnel shortage by MOS, Grade and Number affecting operations: (This section transmitted in writing only)

MOS	GRADE	NUMBER

f. PW—Civilian-Straggler Report	PW	STRAGGLER	CIVILIAN
(1) Previous balance:			
(2) Captured or detained:			
(3) Evacuated:			
(4) Released:			
(5) Remaining on hand:			
(6) Personnel screened:			

(7) Remarks: (List here the parent units of stragglers collected or condition of prisoners.)

(Classification)

(Classification)

2. OPERATIONS:

a. Equipment shortages affecting current operations.

(Col A) TYPE	(Col B) AMOUNT	(Col C) REMARKS

b. Other factors affecting current operations.

c. Shore party operations not covered in other reports.

3. LOGISTICS

a. Captured Enemy Materiel Status.

(Col A) TYPE	(Col B) UNIT OF MEASURE	(Col C) QUANTITY RECEIVED	(Col D) SERVICE-ABLE	(Col E) UNSERVICE-ABLE	(Col F) EVACUATED

b. Location of water points and water issued during period.

(Col A) LOCATION	(Col B) GALLONS ISSUED
(1)	
(2)	
(3)	

4. REMARKS: (Include items of shore party interest.)

(Signature)

(Rank) (Title)

(Classification)

APPENDIX Q

ILLUSTRATIONS OF STANDARD FLAGS, LIGHTS, AND MARKERS USED TO CONTROL AMPHIBIAN VEHICLES

The illustrations contained in this appendix include markers, flags, and lights which are employed both at sea and ashore in the control of amphibious vehicles. These devices are also standard to landing craft and landing ships.

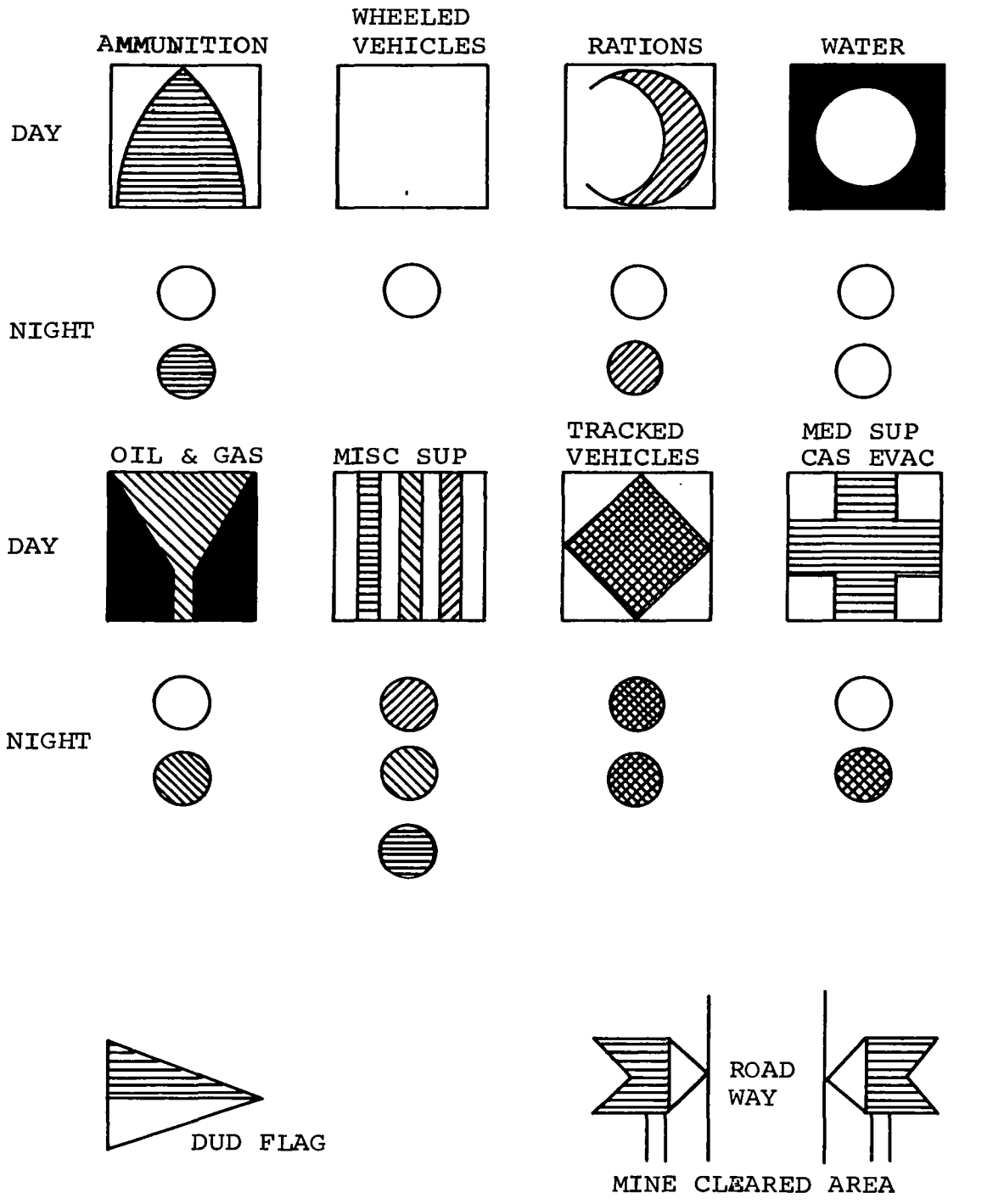

Figure Q–1. Unloading point markers.

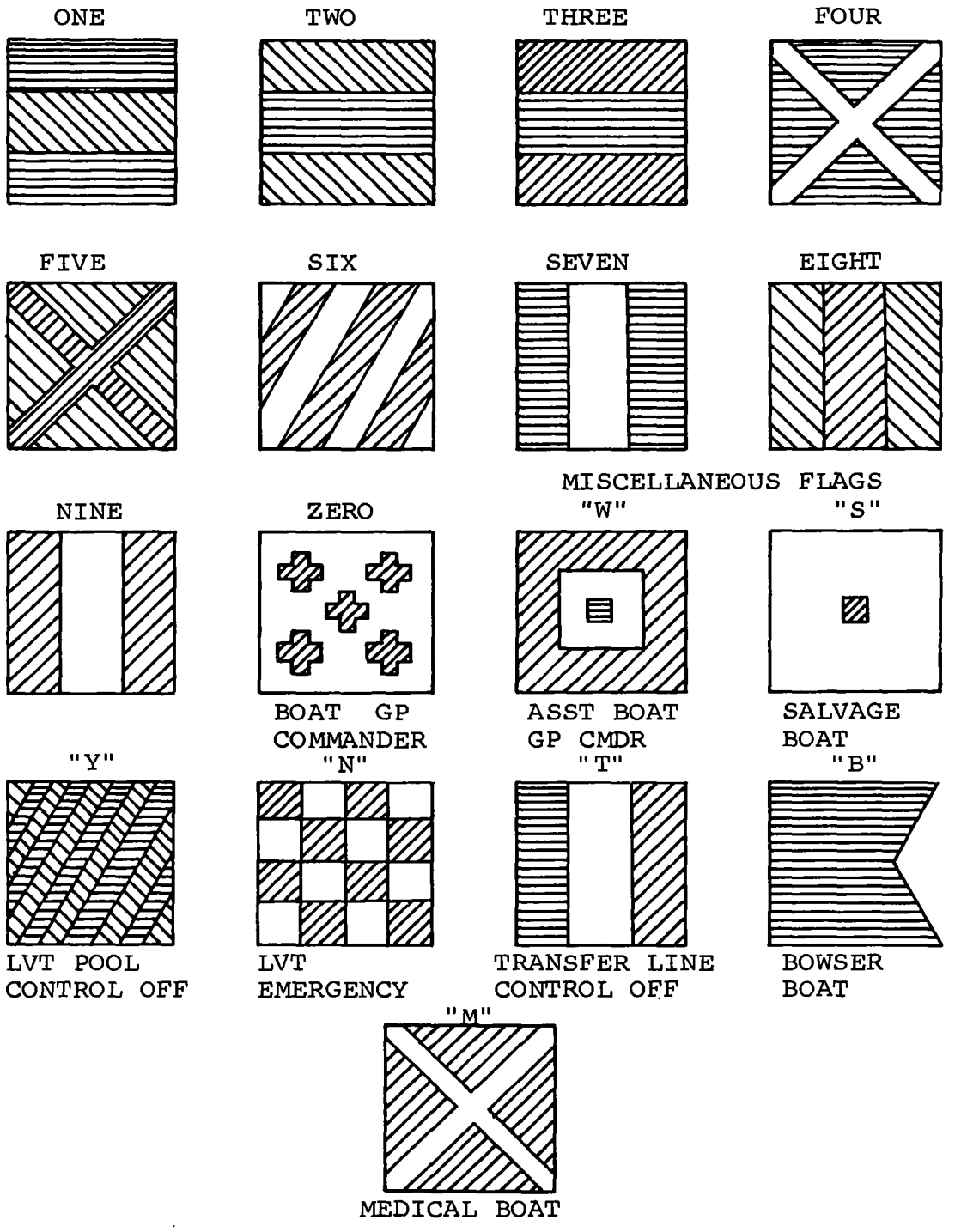

Figure Q–2. Numeral flags.

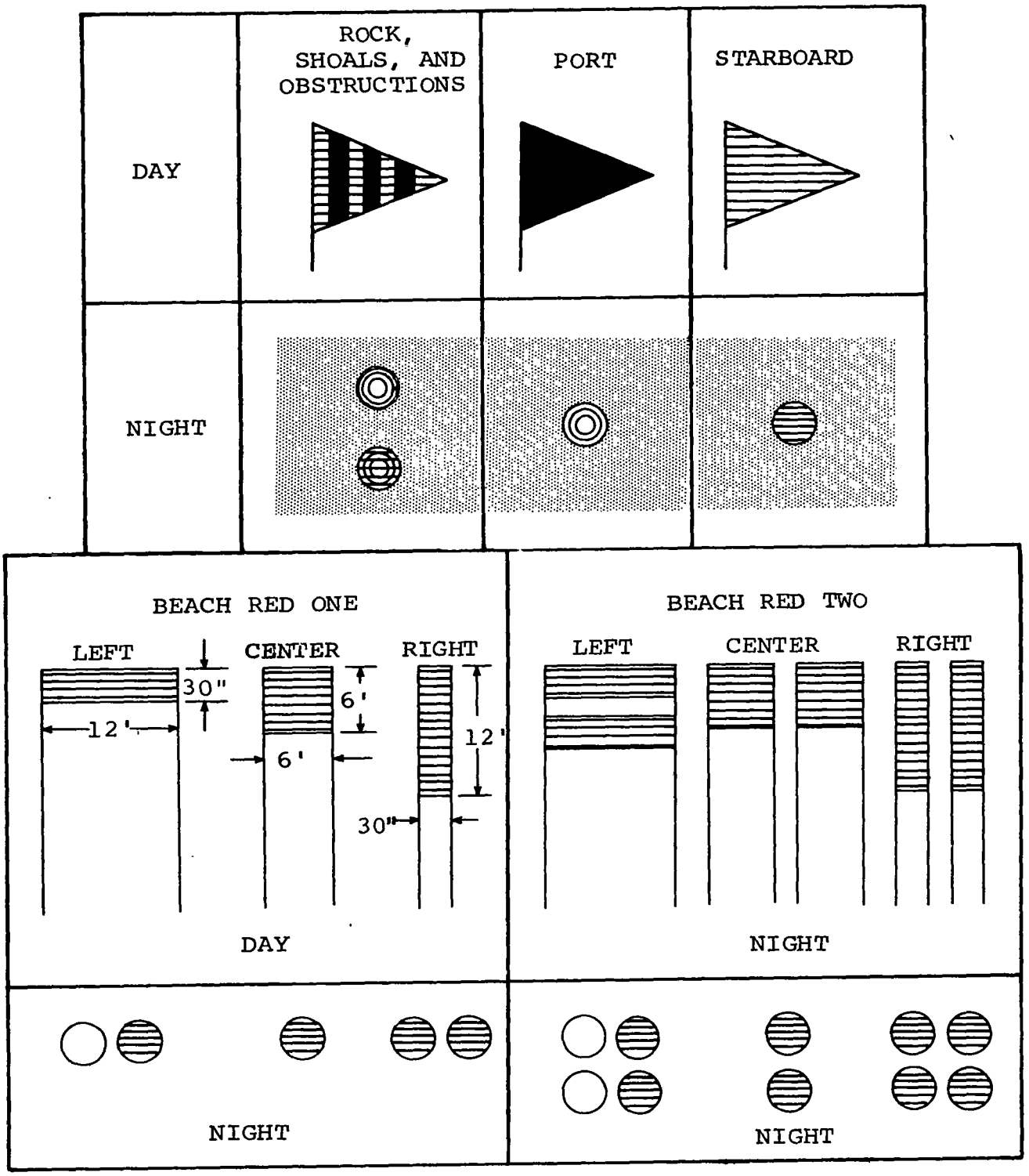

Figure Q–3. Lights and markers for use and control of amphibious vehicles.

★APPENDIX R

USE OF NON-AIR DEFENSE WEAPONS AGAINST AIRCRAFT

R–1. Concept

a. The substantial low altitude air threat faced by units in the combat theater may be partially countered by aggressive use of the large volume of fire which non-air defense weapons, e.g., small arms and automatic weapons, can place against this threat.

b. Exercise of the individual and collective right of self defense against hostile aircraft must be emphasized.

c. Indiscriminate use of non-air defense weapons must be prevented. Engagement of hostile aircraft in immediate self defense will be most frequent and training emphasis should reflect this.

R–2. Rules of Engagement

In the absence of orders to the contrary, individual weapon operators will engage attacking aircraft; engagement of all other hostile aircraft will be on orders (based on SOP) issued through the unit chain of command and will be supervised by unit leaders. Nothing in this rule is to be taken as requiring actions prejudicial to accomplishment of the primary mission of the unit.

R–3. Techniques

a. Engagement of Low-Speed Aircraft. In accordance with the rule of engagement, engage low speed enemy aircraft with aimed fire, employing the maximum weapon rate of fire. Aerial gunnery techniques generally applicable to all small arms and automatic weapons are presented in FM 23–65.

b. Engagement of High-Speed Aircraft. In accordance with the rule of engagement, engage high speed enemy aircraft with maximum fire aimed well in front of the aircraft, and above its flight path, in order to force it to fly through a pattern of fire.

c. Use of Tracer Ammunition. Automatic weapons should utilize the highest practical proportion of tracer ammunition to enhance the deterrent or disruptive effect.

d. Massed Fire. Units should employ a massed fire technique when using small arms and automatic weapons in an air defense role, i.e., unit leaders should direct fires so as to mass the available fires against a selected target(s).

R–4. SOP Items

Unit SOP should cover, but not be limited to, the following items relevant to engagement of aircraft with non-air defense weapons.

a. Applicability. (Operators of designated weapons.)

b. Relation to Primary Mission. (Primary mission is never prejudiced.)

c. Relation to Passive Air Defense. (The necessity for aggressively engaging hostile aircraft is balanced with the requirement to place in proper perspective the tactic of withholding fire to preclude disclosure of position.

d. Authority to Engage. (Authority to engage attacking aircraft delegated to individual weapons operators, except when explicitly denied. Authority to engage all other hostile aircraft on orders through unit chain of command, subject to local and theater SOP.)

e. Rule of Engagement. (Normally self defense only against all attacking aircraft, or as ordered.)

f. Rules for Withholding Fire. (When ordered. When not positive that aircraft are actually attacking or otherwise hostile. When friendly aircraft or troops are endangered.)

g. Position Selection. (Applicable only to weapons specifically assigned an air defense role; e.g., designated single barrel caliber .50 machineguns.)

h. Firing Techniques. (Lead and superelevation. Massed fire. Maximum rate of fire. Maximum use of tracer ammunition.)

i. Unit Training Requirements. (Motivation and discipline. Gunnery. Aircraft recognition.)

GLOSSARY

Causeway Launching Area—Areas located near the line of departure but clear of the approach lanes, where ships can launch pontoon causeways.

Floating Dump—Emergency supplies preloaded in landing craft, amphibious vehicles, or in landing ships. Floating dumps are located in the vicinity of the appropriate control officer who directs their landing as requested by the troop commander concerned.

Followup Shipping—Ships not assigned to an amphibious task force but which move troops and materiel to the objective area after the initial assault landings have been executed.

Free Boat—A boat assigned to carry elements of the landing force that is not assigned to any wave but is permitted to move independently and freely as directed by the boat team commander.

General Unloading Period—That part of a ship-to-shore movement in which unloading is primarily logistic in character, and emphasizes speed and volume of unloading operations. It encompasses the unloading of units and cargo from the ships as rapidly as facilities on the beach permit. It proceeds without regard to class, type, or priority of cargo, as permitted by cargo handling facilities ashore. (See Initial Unloading Period.)

Initial Supply—In an amphibious operation, supply scheduled for movement to the objective area to attain prescribed levels of supply in support of a landing force from the initial assault until resupply transported in followup shipping is available. Initial supply is moved in assault shipping.

Initial Unloading Period—That part of a ship-to-shore movement in which unloading is primarily tactical in character and must be instantly responsive to landing force requirements. (See General Unloading Period.)

Landing Beach—That portion of a usable coastline usually required for the landing of one assault landing team, e.g., one BLT. However, it may also be that portion of a shoreline constituting a tactical locality, such as the shore of a bay, over which a force smaller than a BLT may land.

Landing Craft Mechanized (LCM)—A landing craft designed to land tanks, trucks, and trailers directly onto the beach.

Landing Craft Utility (LCU)—A landing craft designed for the transportation of cargo and heavy vehicles from ship to shore.

Landing Craft Vehicle Personnel (LCVP)—The principal craft used to transport assault troops to the beach. May also be used to land small vehicles or general cargo.

Landing Force Supplies—Those supplies remaining in assault shipping after initial combat supplies and floating dumps have been unloaded. They are landed selectively in accordance with the requirements of the landing force until the situation ashore permits the inception of general unloading.

Landing Sequence Table—A document which incorporates the detailed plans for the ship-to-shore movement of nonscheduled units.

Subsidiary Landing—A landing, usually made outside the designated landing area, the purpose of which is to support the main landing.

Transfer Line—A designated line to seaward of the surf line off a landing beach where personnel and materiel are transferred from landing craft to amphibious vehicles.

Wave Commander—Officers assigned to form waves and control them in all subsequent movements under the direction of a boat group commander.

Wave Guide—A wave guideboat with embarked wave guide officer to assist in the navigation of amphibious vehicles to the beach.

Wave Number—The number assigned to surface and helicopter waves employed in the scheduled ship-to-shore movement. Waves are numbered successively from front to rear as first wave, second wave, etc.

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Pages

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1–1. Purpose and Scope

a. This manual provides guidance for commanders, staff officers, and others concerned with the planning, employment, and operations of specialized engineer amphibious units. It provides commanders and staffs with principles, doctrine, and procedures concerning the missions, functions, capabilities, organization, and equipment provided by engineer amphibious units. This will permit employing authorities to use these specialized engineer elements with maximum effectiveness in support of combat forces conducting amphibious, shore-to-shore, or major river crossing operations.

b. Specialized engineer units included within the scope of this manual are—

(1) The Engineer Amphibious Brigade (Headquarters and Headquarters Company, TOE 5–401).

(2) The Engineer Amphibious Group (Headquarters and Headquarters Company, TOE 5–402).

(3) The Engineer Amphibious Battalion (TOE 5–405). Organic to each engineer amphibious battalion are—

(*a*) A Headquarters and Headquarters Company (TOE 5–406).

(*b*) Two (2) Engineer Amphibian Assault Companies (TOE 5–407).

(*c*) An Engineer Amphibious Company (Shore Party Company, TOE 5–408).

c. The material presented is applicable without modification to both nuclear and conventional warfare, and internal defense operations.

1–2. Collateral References

A knowledge of the material contained in FM 31–11, FM 31–12, FM 31–13, and FM 60–30 is essential for a clear understanding of amphibious doctrine. For river crossing operations a knowledge of the material contained in FM 31–60 is also required. Certain portions of these manuals and U.S. Navy and Marine Corps manuals as related to the role of the engineer in amphibious operations have been repeated in this manual to provide a basis for a detailed discussion on the engineer organizations, doctrine, equipment, and employment in amphibious operations.

1–3. Terminology

a. A glossary of amphibious terminology is included in this manual. Common amphibious terms are also included in AR 320–5 and JCS Pub 1. Those terms which are repeatedly used in this manual are also explained in the text.

b. The terms *amphibious vehicle* (U.S. Army terminology) or *amphibian vehicle* or *amphibian* as used herein, are synonymous and are defined as, "a wheeled or tracked vehicle capable of operating on both land and water." The term *amphibious tractor* is also used in this manual and refers to amphibious vehicles of the landing vehicle, tracked (LVT) family.

1–4. Recommendations for Improvement

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text in which change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to the Commanding Officer, U.S. Army Combat Developments Command Engineer Agency, Fort Belvoir, Va. 22060.

Section II. ENGINEER MISSION AND ROLE

1–5. Mission

The mission of engineer amphibious units is to provide—

a. A shore party headquarters for tactical units at corps, division, brigade, or battalion level.

b. Command and control of assigned and attached units.

c. Assistance in the planning and execution of amphibious, shore-to-shore, and major river crossing operations.

d. Amphibious mobility in lightly armored vehicles for tactical units engaged in the assault of hostile shores.

e. Support of internal defense operations as required.

1–6. Assignment of Engineer Amphibious Units

The formation of the assault elements of a landing force is dependent on such factors as the scheme of maneuver ashore, size of the landing force, hydrography, available beaches, and available amphibious vehicles and landing craft. In turn, the type of engineer amphibious unit assigned to the force is dependent on the size of the landing force and the number of beaches it will land on.

1–7. Army Component Force

a. No standard organization is applicable to all situations that may be encountered in an amphibious operation. The force organized for conduct of an amphibious operation is a task organization which is designated as an amphibious task force.

b. The army component of an amphibious task force is a task organization formed of army units assigned thereto for participation in an amphibious operation. This component is referred to as the army landing force.

c. The composition and size of the army landing force varies with the type amphibious operation, landing force mission, and operational environment.

d. The army landing force and each of its subordinate echelons must be balanced forces capable of independent operations for the execution of an amphibious attack. An amphibious attack by its very nature requires reinforcement of the basic tactical element at each echelon of the landing force to provide combat support and interim combat service support capability pending establishment of normal support systems in the objective area. The army meets the requirements of the amphibious operation through temporary internal reorganization of assault units and grouping of units as task organizations, to include certain units which by design provide specialized support needed in the assault of a hostile shore.

e. Engineer amphibious units are among the army units designed to provide specially qualified personnel and units for performance of combat support and interim combat service support functions as part of the army landing forces executing landings.

1–8. Doctrinal Considerations

A rigid concept of landing force employment or shore party requirements is not feasible; nor is it possible to identify a normal or typical amphibious operation. To facilitate understanding of landing force employment and support requirements, however, the following are doctrinal considerations:

a. The Landing Force. The landing force may be of army, corps, division, or smaller size. As the smallest combined arms and services organization, the division normally is employed as the lowest landing force echelon for independent landings and execution of a scheme of maneuver ashore.

b. Brigade Landing Team (Bde LT). A brigade landing team is a task organization consisting of two or more BLT's, two of which normally will make simultaneous assaults on a beach. It has reinforcing combat support and combat service support elements to provide combat support and interim combat service support during the period it conducts independent tactical operations.

c. Battalion Landing Team (BLT). A battalion landing team is a task organization composed of a battalion level combat unit and the reinforcing combat and combat service support elements required for combat and interim combat service support during the period it conducts independent tactical operations.

CHAPTER 2

THE ENGINEER AMPHIBIOUS BRIGADE

2–1. Mission

The mission of the engineer brigade is to command assigned or attached units; to provide a shore party headquarters at corps level; and to provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossings of major rivers and other water barriers.

2–2. Assignment

The engineer amphibious brigade is normally assigned to a field army or independent corps, as required, for amphibious or shore-to-shore operations.

2–3. Capabilities

a. The engineer amphibious brigade is capable of providing—

(1) Command, staff planning, administration, control, and supervision of the operations of two to four engineer amphibious groups and other attached units.

(2) Assistance to an army or corps commander and staff in the planning and execution of an amphibious or shore-to-shore operation.

(3) A corps shore party headquarters.

(4) Supervision for the collection of engineer intelligence information; preparation of shore, beach, river, terrain, hydrographic and hydrologic reports; and evaluation and dissemination of engineer intelligence.

(5) Effective coordinated defense of the unit's area or installation.

b. Medical service is provided by appropriate teams from TOE 8–500, as required.

c. Multichannel communications facilities required for an operation are provided by appropriate teams from TOE 11–500.

d. A liaison team, consisting of a U.S. Navy lieutenant commander and a yeoman, is provided by the U.S. Navy, when required.

2–4. Organization and Functions

The engineer amphibious brigade is a flexible organization. The number and composition of the units assigned or attached to it depend upon a specific mission. Normally, from two to four engineer amphibious groups are assigned or attached to the brigade. During an amphibious operation of corps size, a variety of combat and combat service support units are also attached to the engineer amphibious brigade as part of the shore party task organization for the duration of the assault phase of the operation. The headquarters and headquarters company of the engineer amphibious brigade, however, is a fixed organization (fig. 2–1). It consists of two elements as follows:

a. Brigade Headquarters. Brigade headquarters provides the command and staff personnel required to command and control the corps shore party and the assigned or attached engineer amphibious groups. It consists of the following personnel:

(1) Brigade commander.
(2) Deputy commander.
(3) S1.
(4) S2.
(5) S3.
(6) S4.
(7) Aviation officer.
(8) Surgeon.
(9) Chaplain.
(10) Signal officer.
(11) Liaison officers (3).
(12) Aide-de-camp.
(13) Sergeant major.

b. Headquarters Company. Headquarters company consists of a company headquarters and the personnel of the operating sections of the brigade.

STRENGTH
OFF 25 WO 0 EM 81 AGG 106

TOE 5-401

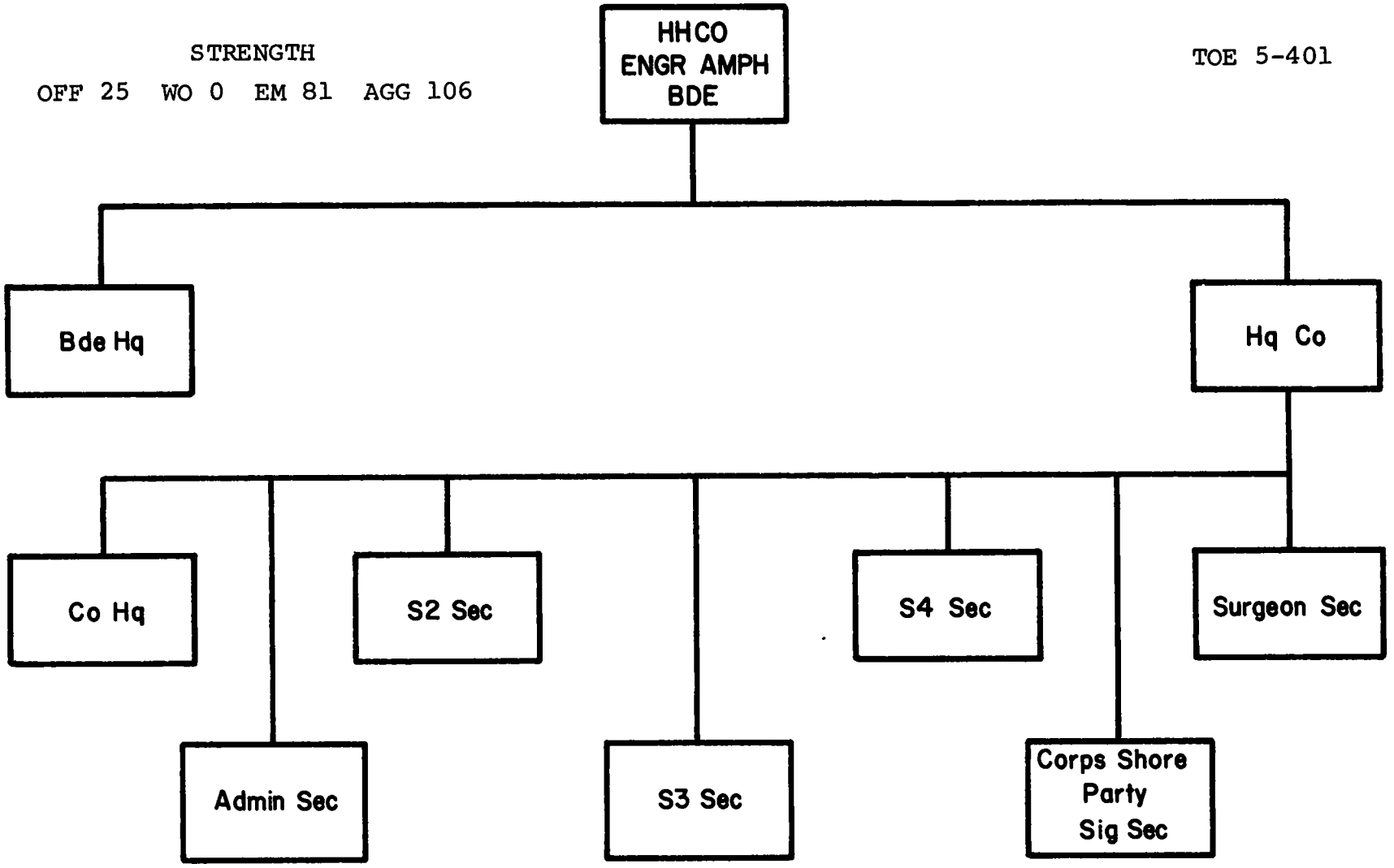

Figure 2–1. Organizational chart, headquarters and headquarters company, engineer amphibious brigade.

(1) *Company headquarters.* The company headquarters provides the command, administration, supply, mess service, and equipment maintenance for the company.

(2) *Administrative section.* The administrative section is supervised by the brigade S1. It provides administrative services for the command and attached units.

(3) *S2 section.* The S2 section plans and directs the collection, evaluation, interpretation, and distribution of intelligence and counterintelligence pertaining to amphibious operations. It assists the landing force staff in the acquisition and evaluation of beach information and other intelligence of concern to the shore party and ship-to-shore functions.

(4) *S3 section.* The S3 section provides personnel to direct and coordinate organizational, training, and operational support activities. It assists the landing force in planning and in operations and insures compatibility of shore party organization. It plans and coordinates shore party landing sequences and beach support area development. In conjunction with the landing force G3, it assists in the preparation of plans for the use of engineer amphibian assault companies in the ship-to-shore movement. The S3 section will perform the duties of the civil affairs and psychological operations sections if civil affairs or psychological operations personnel are not assigned or attached. It coordinates with civil affairs units and the landing force G5 to insure appropriate actions are planned and taken toward civilians in the beach support area.

(5) *S4 section.* The S4 section plans, coordinates, and supervises supply, evacuation, transportation, transportation services, mess service, organizational maintenance, and related combat service support activities. It is not in the chain of supply but may inject itself as appropriate to insure continuity and effectiveness of combat service support.

(6) *Corps shore party signal section.* The corps shore party signal section is supervised by the brigade signal officer. This section provides the personnel and equipment required to coordinate and control the beach support area communications for the shore party and subordinate elements of the brigade.

(7) *Surgeon's section.* The surgeon's section is supervised by the brigade surgeon. It is responsible for aiding the landing force staff in the planning of the treatment and evacuation of patients, beach sanitation, and on all medical matters.

2–5. Employment

The headquarters and headquarters company, engineer amphibious brigade, contains the command and staff required when a corps shore party task organization is formed. The engineer amphibious brigade commander is designated as the corps shore party commander and commands all the units and personnel forming the corps shore party task organization. This organization varies in size depending on the number of divisions engaged in the assault landing, the number of beaches used, and the complexity of the operation. Thus, the corps shore party task organization, when formed, could number from 15,000 to 20,000 personnel composed of a variety of units, including naval units. The primary mission of the brigade, in an effort of this type, is to coordinate and control the beach support area (BSA) development initiated by the subordinate engineer shore party commands of the multiple divisions engaged in the landing. The corps shore party is responsible for combat support and combat service support of the tactical units and the development of the beach support area until relieved by a combat service support command. In addition, the engineer amphibious brigade provides guidance and assistance to the landing force commander in the planning and employment of the engineer amphibian assault companies of the engineer amphibious battalion in the amphibious mobility function. Relief and dissolution of the corps shore party task organization is dependent on the termination of the assault phase which would permit expansion of the beachhead sufficiently to accommodate a corps type combat service support unit in its operation.

2–6. Basis of Allocation

One engineer amphibious brigade is assigned to a field army or corps, as required, for an amphibious or a shore-to-shore operation.

2–7. Mobility and Category

a. This unit is 100 percent mobile.

b. This unit is designated as a category I unit.

2–8. Equipment

Equipment allocations are shown in TOE 5–401E. For a summarization of the communications equipment used by the brigade, see appendix N.

CHAPTER 3

THE ENGINEER AMPHIBIOUS GROUP

3–1. Mission

The mission of the engineer amphibious group is to command assigned and attached units; to provide a shore party headquarters at division level; and to provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossing of major rivers and other water barriers.

3–2. Assignment

The engineer amphibious group normally is assigned to a field army, independent corps, or division, as required, to support a division size landing force, for amphibious or shore-to-shore operations.

3–3. Capabilities

The engineer amphibious group is capable of providing—

a. Command, staff planning, administration, control, and supervision of the operations of two to four engineer amphibious battalions and other attached units.

b. A shore party headquarters for an army division.

c. Assistance to the tactical commander and his staff in the planning and execution of an amphibious or shore-to-shore operation.

d. Supervision for the collection of engineer intelligence information; preparation of shore, beach, river, terrain, hydrographic, and hydrologic reports; and evaluation and dissemination of engineer intelligence.

e. Communication support for the division shore party. (Multichannel communications facilities for an operation are furnished by TOE 11–500 team(s), as required.)

f. Aerial command liaison, utility, and reconnaissance services when augmented by appropriate team(s) from TOE 29–500.

3–4. Organization and Functions

Like the engineer amphibious brigade, the engineer amphibious group is a flexible organization. The number and composition of the units assigned or attached to it depend upon a specific mission. Normally, from two to three engineer amphibious battalions are assignd or attached to the group for an amphibious operation of division size. During an amphibious operation of division size, a variety of combat and combat service support units are also attached to the engineer amphibious group as part of the division shore party task organization for the duration of the assault phase of the operation. The headquarters and headquarters company of the engineer amphibious group, however, is a fixed organization (fig. 3–1). It consists of two elements as follows:

a. Group Headquarters. Group headquarters provides the command and staff personnel required to command and control the division shore party and the assigned or attached engineer amphibious battalions. It consists of the following personnel:

(1) Group commander.
(2) Executive officer.
(3) Adjutant S1.
(4) Intelligence officer S2.
(5) Operations officer S3.
(6) Supply officer S4.
(7) Aviation officer.
(8) Surgeon.
(9) Chaplain.
(10) Communications officer.
(11) Maintenance officer.
(12) Sergeant major.

b. Headquarters Company. Headquarters company consists of a company headquarters and the personnel of the operating sections of the group.

(1) *Company headquarters.* The company headquarters provides the command, ad-

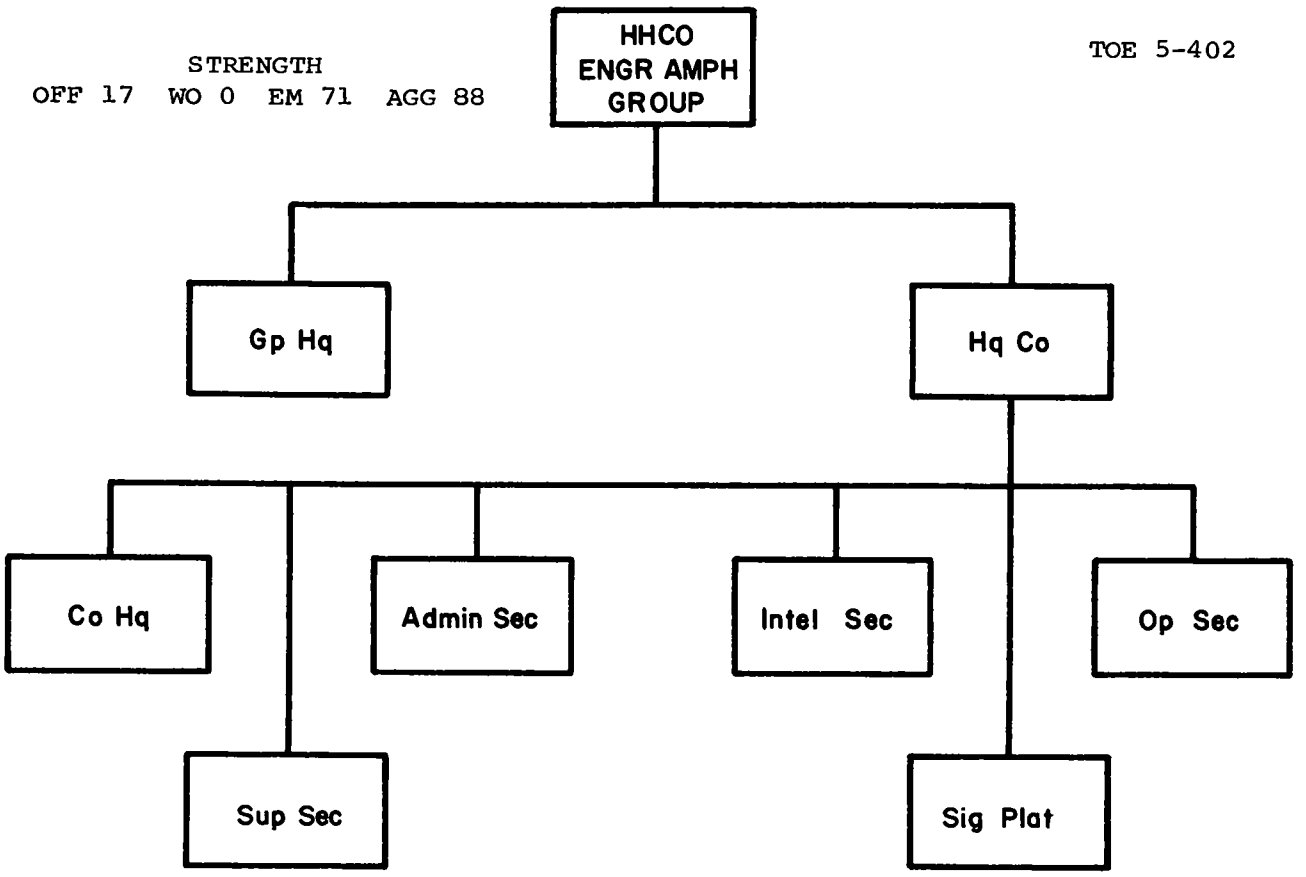

Figure 3–1. Organizational chart, headquarters and headquarters company, engineer amphibious group.

ministration, supply, mess service, and equipment maintenance for the company.

(2) *Administration section.* The administration section is supervised by the group S1. It provides administrative services for the group and its attached units.

(3) *Intelligence section.* The intelligence section is supervised by the group S2 and performs, at group level, functions similar to the brigade S2 section, previously discussed.

(4) *Operations section.* The operations section is supervised by the operation officer. It performs, at group level, functions similar to the brigade S3 section, previously discussed.

(5) *Supply section.* The supply section is supervised by the group supply officer. It performs, at group level, functions similar to the brigade S4 section, previously discussed.

(6) *Signal platoon.* The signal platoon consists of the personnel and equipment required to install, operate, and maintain the communications required by a division shore party and control element. A team from this platoon may be attached temporarily to each brigade landing team shore party to provide supplementary communications support.

3–5. Employment

The headquarters and headquarters company, engineer amphibious group, contains the command and staff required when a division shore party task organization is formed. The engineer amphibious group commander is designated as the division shore party commander and commands all the units and

CHAPTER 4

THE ENGINEER AMPHIBIOUS BATTALION

Section I. GENERAL

4–1. Mission

The mission of the engineer amphibious battalion is to—

a. Provide the command, control and the nucleus for the shore party of a brigade-size landing force during amphibious or shore-to-shore operations.

b. Provide tactical amphibian mobility for dismounted combat units in the passage of water barriers.

c. Provide assistance in planning and executing amphibious or shore-to-shore operations including landings on a hostile shore and crossings of major rivers and other water barriers.

d. Undertake and carry out infantry combat missions when required.

4–2. Assignment

The engineer amphibious battalion normally is assigned to a field army with attachment to an engineer amphibious group.

4–3. Capabilities

a. At full strength, the engineer amphibious battalion provides—

(1) Command, staff planning, administration, and supervision of operations of assigned and attached units.

(2) The nucleus for a brigade landing team shore party headquarters or two separate BLT shore parties.

(3) Assistance to a division or brigade commander and staff in planning for an amphibious, shore-to-shore, or major river crossing operation.

(4) Lightly armored amphibian mobility for 2,040 dismounted assault troops when equipped with the landing vehicle, tracked, personnel (LVTP5).

(5) With suitable augmentation, the following medical support to a brigade landing team of two included battalion landing teams.

(*a*) Emergency medical treatment, coordination, and supervision of evacuation to offshore medical facilities utilizing waterborne and air facilities available.

(*b*) The establishment and operation of aid and evacuation stations within two beach support areas.

(6) Establishment and operation of the following signal facilities for two BLT shore parties or one consolidated brigade landing team shore party.

(*a*) Message center, cryptographic, and radio teletypewriter service.

(*b*) Manual telephone switchboard and local telephone service.

(*c*) AM (CW and voice) and FM voice radio stations in the BLT and brigade radio nets.

(*d*) Trunkline and signal center service to shore party elements.

(*e*) Visual signals consisting of semaphore and blinkers for shore-to-ship and shore-to-shore communications.

(7) Engineer reconnaissance and intelligence for the battalion and the supported tactical brigade-size force.

(8) Engineer and terrain field reconnaissance data to the engineer amphibious group and/or engineer amphibious brigade.

b. The reduced strength column adapts the table of organization and equipment to the lesser requirements for personnel and equipment for support of

one BLT shore party and transport of 1,020 dismounted assault troops when equipped with the LVTP5.

c. This unit is not adaptable to a Type B organization.

d. Individuals of this organization, except chaplains and medical personnel, can engage in effective, coordinated defense of the unit's area or installation.

4–4. Organization

The engineer amphibious battalion (fig. 4–1) is organized under TOE 5–405 and consists of—

a. A headquarters and headquarters company (see para 4–9—4–16).

b. Two engineer amphibian assault companies (see para 4–17—4–24).

c. An engineer amphibious company (see para 4–25—4–32).

4–5. Employment

In an amphibious operation, the engineer amphibious battalion is responsible for the ship-to-shore and inland mobility of assault troops and for the operation of shore parties for two battalion landing teams which are eventually consolidated into a shore party for a brigade landing team. It is capable of transporting in one lift, 2,040 troops in lightly armored amphibious vehicles for the assault movement to the beach and for limited distances inland. In addition, it contains personnel and equipment to perform reconnaissance, mine clearance, and beach improvement.

4–6. Basis of Allocation

Normally one engineer amphibious battalion is provided for each brigade landing team.

4–7. Mobility and Category

a. The engineer amphibious battalion and its organic units are 100 percent mobile.

b. The engineer amphibious battalion and its organic companies are designated as category I units (reference Unit Categories, AR 320–5).

4–8. Equipment

For a discussion of the equipment organic to the battalion, see the discussions under the equipment paragraph for the individual organic companies.

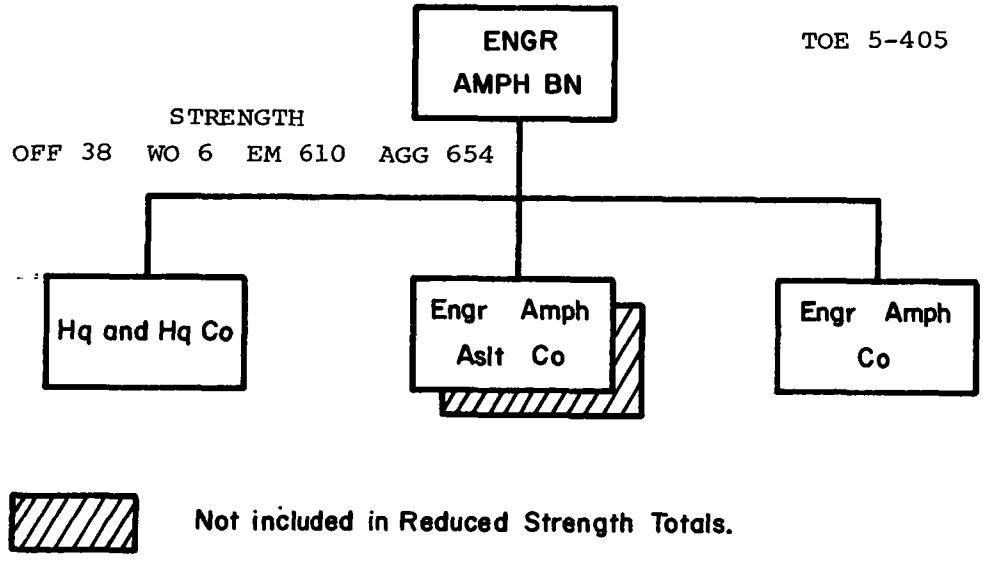

Figure 4–1. Organizational chart, engineer amphibious battalion.

Section II. HEADQUARTERS AND HEADQUARTERS COMPANY, ENGINEER AMPHIBIOUS BATTALION

4–9. Mission

The mission of headquarters and headquarters company, engineer amphibious battalion is to—

a. Command assigned and attached units.

b. Provide the command, control, and nucleus for the shore party of a brigade size landing force during amphibious or shore-to-shore operations.

c. Provide assistance in planning and executing amphibious or shore-to-shore operations including landings on a hostile shore and crossing of major rivers and other water barriers.

d. Undertake and carry out the combat mission of an infantry headquarters and headquarters company, as required.

4–10. Assignment

Headquarters and headquarters company is organic to an engineer amphibious battalion.

4–11. Capabilities

a. At full strength, this unit provides—

(1) Command, staff planning, administration, and supervision of operations of assigned and attached units.

(2) The nucleus for a brigade shore party headquarters.

(3) Assistance to a division or brigade commander and staff in planning for an amphibious, shore-to-shore, or river crossing operation.

(4) Reconnaissance within the beach support area.

(5) Breaching natural and manmade beach obstacles and hasty removal of mines on the beach.

(6) With suitable augmentation, the following medical support to a brigade landing team of two included battalion landing teams.

(*a*) The establishment and operation of aid and evacuation stations for two beach support areas.

(*b*) Emergency medical treatment, coordination and supervision of evacuation to offshore medical facilities utilizing waterborne and air facilities available.

(7) Direct support maintenance of equipment organic to the battalion when augmented, by a direct support maintenance platoon.

b. The reduced strength column adapts the table of organization and equipment to the lesser requirements for personnel and equipment for support of the brigade landing team consisting of one included BLT.

c. This unit is not adaptable to a Type B organization.

d. Individuals of this organization, except chaplain and medical personnel, can engage in effective, coordinated defense of the unit's area or installation.

4–12. Organization and Functions

The headquarters and headquarters company, engineer amphibious battalion, is organized under TOE 5–406 (fig. 4–2). It consists of two elements as follows:

a. Battalion Headquarters. Battalion headquarters provides the command and staff personnel required to command and control a brigade landing team shore party and the operation of the amphibious vehicles which provide ship-to-shore and inland mobility for the assault elements of the brigade landing team. Battalion headquarters consists of the following personnel:

(1) Battalion commander.
(2) Executive officer.
(3) Adjutant S1.
(4) S2.
(5) S3.
(6) S4.
(7) Surgeon.
(8) Maintenance officer.
(9) Communications officer.
(10) Chaplain.
(11) Liaison officer.
(12) Sergeant major.

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TOE 5-406

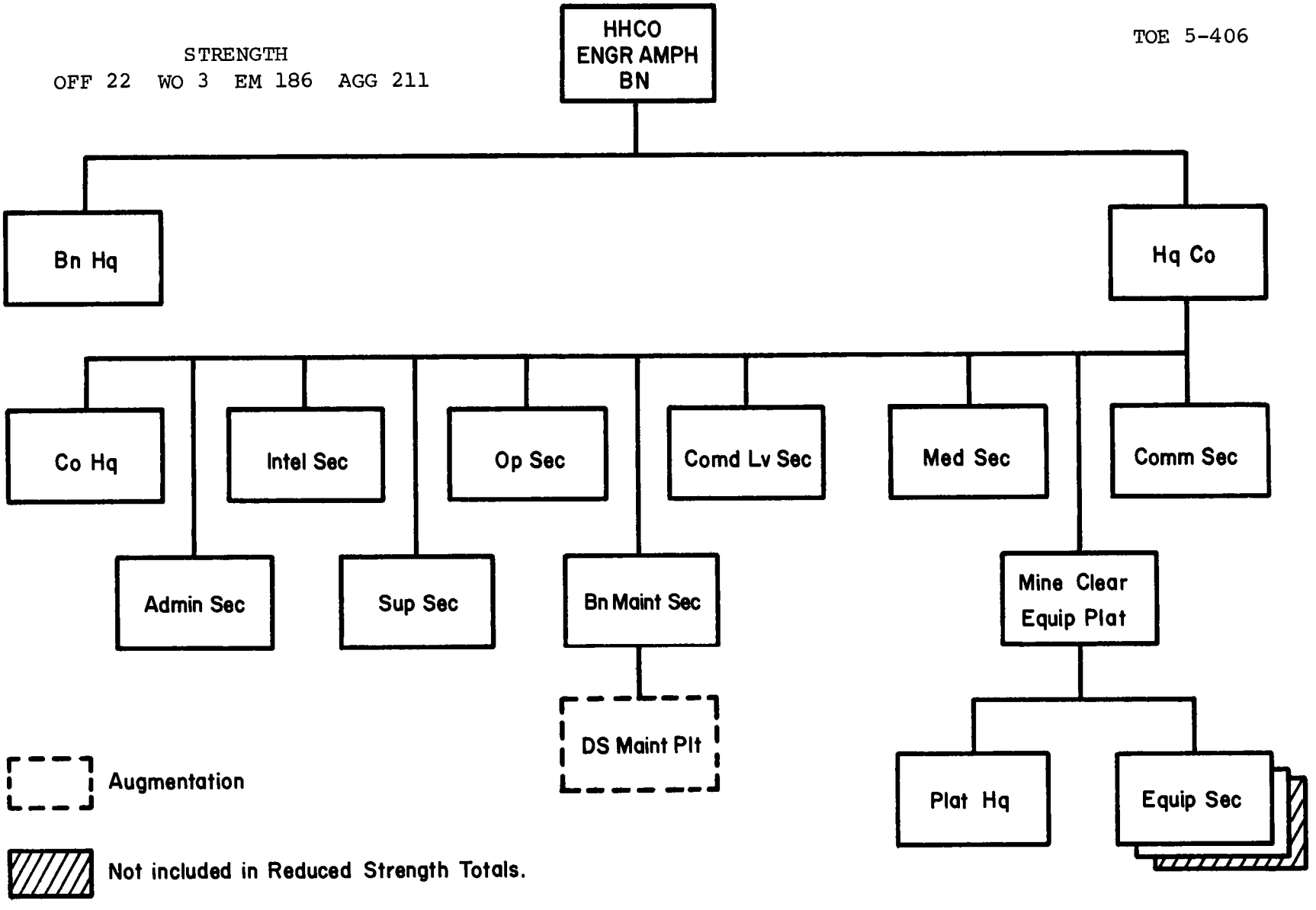

Figure 4-2. Organizational chart, headquarters and headquarters company, engineer amphibious battalion.

b. Headquarters Company. Headquarters company consists of a company headquarters and the personnel of the operating sections of the battalion:

(1) *Company headquarters.* Company headquarters provides command, administration, mess, and supply for the company. It also provides organizational maintenance for the vehicles organic to the company.

(2) *Administrative section.* The administrative section operates a unit personnel section and performs other administrative and personnel tasks normal to a battalion administrative section.

(3) *Intelligence section.* The intelligence section collects, evaluates, and interprets engineer information, and produces and distributes engineer intelligence, counterintelligence, estimates and plans. It advises the commander and subordinate units of enemy situations and capabilities. Six underwater specialists are included in this section to provide hydrographic data and to assist in the clearance of underwater obstacles.

(4) *Operations section.* The operations section directs and coordinates staff functions relative to the organization, training, and combat operations of an amphibious organization. It is also responsible for the preparation of operational orders, and loading and unloading plans.

(5) *Supply section.* The supply section is responsible for the planning, coordination and supervision of all supply matters in the battalion.

(6) *Command landing vehicle section.* This section consists of six LVTC's and the personnel to operate them. These vehicles provide lightly armored transportation for the command elements of the engineer amphibious battalion and the supported assault brigade. The vehicles may be used as mobile command posts or communications centers.

(7) *Battalion maintenance section.* The battalion maintenance section provides backup organizational maintenance for the vehicles organic to the battalion.

(8) *Medical section.* The medical section, when augmented by medical and surgical unit attachments, operates the aid and evacuation stations located in the beach support area and provides routine medical service to the engineer battalion.

(9) *Mine clearance equipment platoon.* This platoon consists of special purpose engineer amphibious vehicles (LVTE's) and the personnel to operate them. For a more detailed discussion of the duties of this platoon, see paragraphs 7–32 through 7–45.

(10) *Communications section.* The communications section provides the personnel and equipment required for the effective command and control of the battalion operations and missions. It provides communications direction and supervision for a brigade landing team shore party, and when required, augments the communications for the separate battalion landing team shore parties.

(11) *Direct support maintenance platoon.* When authorized by the Department of the Army, the engineer amphibious battalion may be authorized a direct support maintenance platoon. This platoon, when authorized, provides direct support maintenance for the vehicles organic to the battalion.

4–13. Employment

The headquarters and headquarters company, engineer amphibious battalion, contains the command and staff necessary to man a brigade landing team shore party. The battalion commander is designated as the brigade shore party commander and commands all the units and personnel forming the brigade landing team shore party. In addition, the commander and staff provide advice and assistance to the tactical headquarters in the employment of the amphibious vehicles and other engineer matters.

4–14. Basis of Allocation

One headquarters and headquarters company is assigned to each engineer amphibious battalion.

4–15. Mobility and Category

a. This unit is 100 percent mobile.

b. This unit is designated a category I unit (reference Unit Categories, AR 320–5).

4–16. Equipment

a. The equipment of this company consists of amphibious vehicles (discussed in *b* below), wheeled vehicles, communications equipment, maintenance and repair equipment, and equipment needed for housekeeping. Armament is restricted to rifles and pistols. For a detailed listing of the equipment, sec TOE 5–406.

b. There are two types of amphibious vehicles organic to the headquarters and headquarters company, engineer amphibious battalion, as follows:

(1) Landing vehicle, tracked, command (LVTC or LVTPC). This vehicle is a lightly armored amphibious assault vehicle. It is used as a command vehicle for both the tactical units and for the engineer amphibian assault units. It may also be used as a mobile fire support coordination center or mobile observation post. There are six LVTC's organic to the headquarters and headquarters company. For a description and illustration of this vehicle, see appendix C. For a discussion of the communications equipment organic to this vehicle see appendix N.

(2) Landing vehicle, tracked, engineer (LVTE). The LVTE is a lightly armored amphibious assault engineer vehicle. It is used to breach minefields and destroy obstacles during the amphibious assault. There are ten LVTE's organic to the headquarters and headquarters company. For a description and illustration of this vehicle, see appendix D. For a discussion of the communications equipment used in this vehicle, see appendix N. For a discussion of its employment, see paragraphs 7–32 through 7–45.

Section III. THE ENGINEER AMPHIBIAN ASSAULT COMPANY, ENGINEER AMPHIBIOUS BATTALION

4–17. Mission

The mission of the engineer amphibian assault company is—

a. To provide tactical amphibian mobility for dismounted combat units in the passage of water barriers.

b. To provide skills and equipment to train other units assigned amphibious missions in amphibious or shore-to-shore operations including landings on a hostile shore and crossings of major rivers and other water barriers.

c. To undertake and carry out infantry combat missions, when required.

4–18. Assignment

The engineer amphibian assault company is organic to the engineer amphibious battalion.

4–19. Capabilities

a. At full strength this unit provides—

(1) Lightly armored amphibian mobility for 1,020 dismounted assault troops when equipped with the landing vehicle, tracked, personnel (LVTP5). Elements may be attached to one or more battalion landing teams in amphibious, shore-to-shore, or major river crossing operation.

(2) Machinegun fire support in the assault phase of an amphibious, shore-to-shore, or major river crossing operation.

(3) Local security and supplements beach support area defense as required.

b. This unit is not adaptable to a reduced strength organization.

c. This unit is not adaptable to a Type B organization.

d. Individuals of this organization can engage in effective coordinated defense of the unit's area or installation.

4–20. Organization and Functions

The engineer amphibian assault company is organic to the engineer amphibious battalion and is organized under TOE 5–407 (fig. 4–3). It consists of a company headquarters, a maintenance section

and three equipment platoons which perform the following functions:

a. Company Headquarters. The company headquarters consists of the necessary personnel and equipment by which the company commander exercises command, control, and coordination of training, administration, and company operations. It provides mess, administration, and supply for the company. It also provides organizational maintenance for radios and arms organic to the company.

b. Maintenance Section. The maintenance section contains the personnel and equipment necessary to perform organizational maintenance on wheeled and tracked vehicles organic to the company. It also performs recovery operations for the company and for this purpose has one landing vehicle, tracked, recovery (LVTR).

c. Equipment Platoon. Each of the three equipment platoons consist of a platoon headquarters and three equipment sections.

(1) *Platoon headquarters.* Platoon headquarters provides the command and control elements for the platoon. Each platoon can transport 340 assault troops in one lift for a ship-to-shore, shore-to-shore, or inland movement. There is one LVTP5 in platoon headquarters.

(2) *Equipment section.* Each of the three equipment sections has three LVTP5's and the necessary operators to man these vehicles. There are three equipment sections organic to each platoon.

4–21. Employment

The engineer amphibian assault company is employed to provide lightly armored ship-to-shore, shore-to-shore, and inland movement for assault forces. Ideally, one engineer amphibian assault company provides this support to one assault battalion landing team. However, the company may be segmented and its platoon may support smaller assault landing teams. With its lightly armored

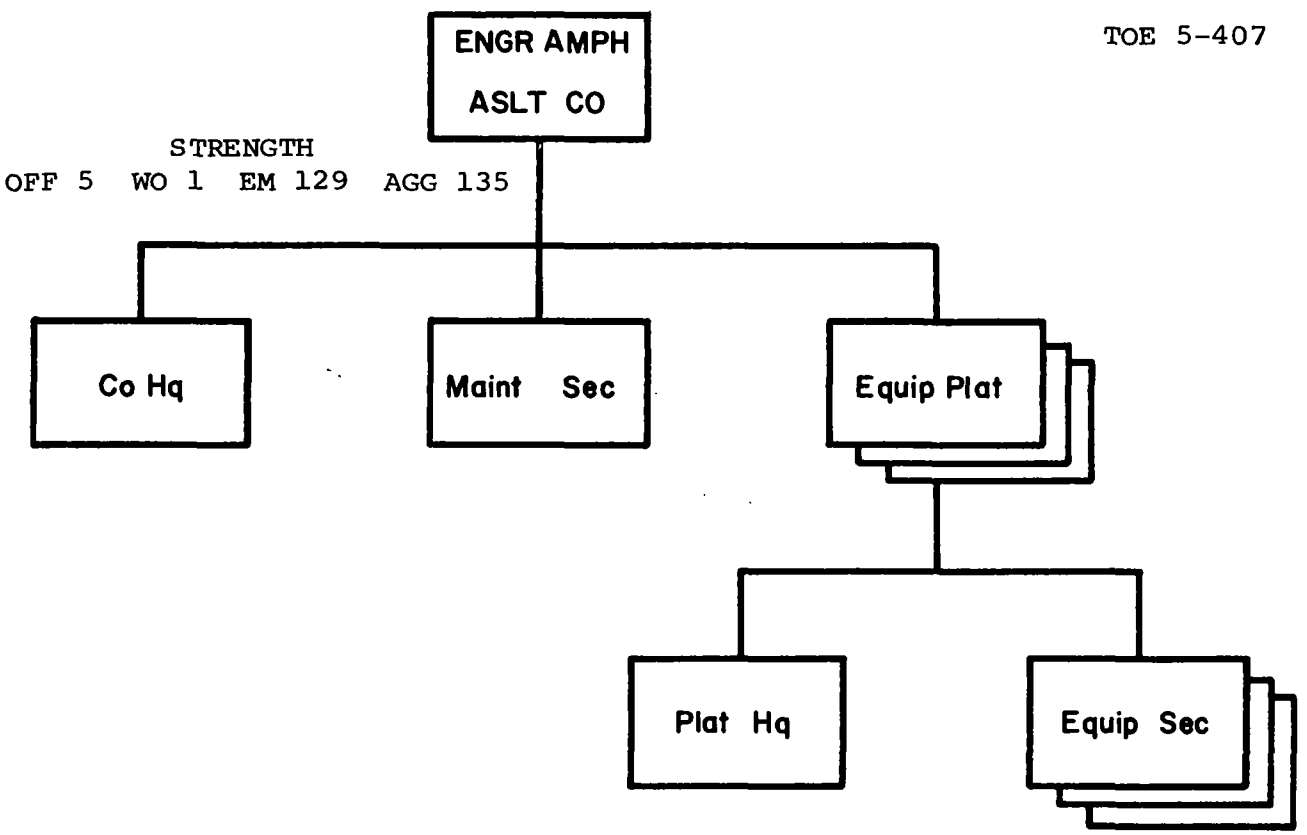

Figure 4–3. Organizational chart, engineer amphibian assault company, engineer amphibious battalion.

LVTP5's (see app B), this unit is employed in the initial waves of the assault. After landing, it continues inland with the assault forces until tanks and armored personnel carriers are landed to support the assault forces. When released, the company or its organic units return to the beach support area and revert to the control of the engineer amphibious battalion. The company and its vehicles are then used for beach security or for the transportation of personnel and cargo and for the evacuation of patients between ship and shore. The two engineer amphibian assault companies are given the letter designation of "A" and "B". For a more detailed discussion of the employment of the engineer amphibian assault company, see chapters 7, 8, and 9. For a discussion of training, see appendix F.

4–22. Basis of Allocation

Two engineer amphibian assault companies are organic to each Engineer Amphibious Battalion, TOE 5–405E.

4–23. Mobility and Category

a. This unit is one hundred percent mobile when the LVTP is used for a combined land and water movement. It is approximately forty percent mobile when only the wheeled vehicles are used for a land movement.

b. This unit is designated a category I unit (reference Unit Categories, AR 320–5).

4–24. Equipment

a. The equipment of this company consists mainly of the amphibious tractors (discussed in *b* below) employed in accomplishing the company mission. In addition, the company has wheeled vehicles, communication and maintenance equipment, and housekeeping equipment. Armament for the company consists of 3.5-inch rocket launchers, rifles, and pistols, in addition to the machineguns with which the amphibious tractors are equipped. For a detailed listing of the equipment, see TOE 5–407.

b. There are two types of amphibious vehicles organic to the engineer amphibian assault company, as follows:

(1) Landing vehicle, tracked, personnel (LVTP5). The LVTP5 (fig. 4–4) is a lightly armored amphibious assault vehicle used to carry assault personnel or cargo. Each LVTP5 lifts a maximum of 34 combat loaded troops under combat conditions. The optimum passenger capacity is 25 combat loaded personnel. There are 30 LVTP5's organic to each engineer amphibian assault company. Although the primary mission of the LVTP5 is to provide amphibious and limited inland mobility for assault personnel, the vehicle is versatile in its usage. It may also be used as a cargo carrier. When employed as a cargo carrier it can carry six tons of cargo afloat and nine tons on land. The vehicle is described and illustrated in appendix B which also lists typical waterborne and land cargo loads for this vehicle. It may also be used to transport mortars, mortar ammunition, and crews, and to transport or tow the 105-mm howitzer complete with crew and ammunition (see app M). Finally, it may be rigged with the LVT ambulance kit and perform as a 12 litter ambulance with amphibious capabilities. For a discussion of the communications equipment organic to this vehicle, see appendix N.

(2) Landing vehicle, tracked, recovery (LVTR). The LVTR is a lightly armored amphibious vehicle used for recovering and repairing disabled vehicles. It provides the principal maintenance capability for the engineer amphibian assault company. One LVTR is organic to each company. For a description and illustration of this vehicle, see appendix E. For a discussion of maintenance, and employment of the LVTR, see appendix I.

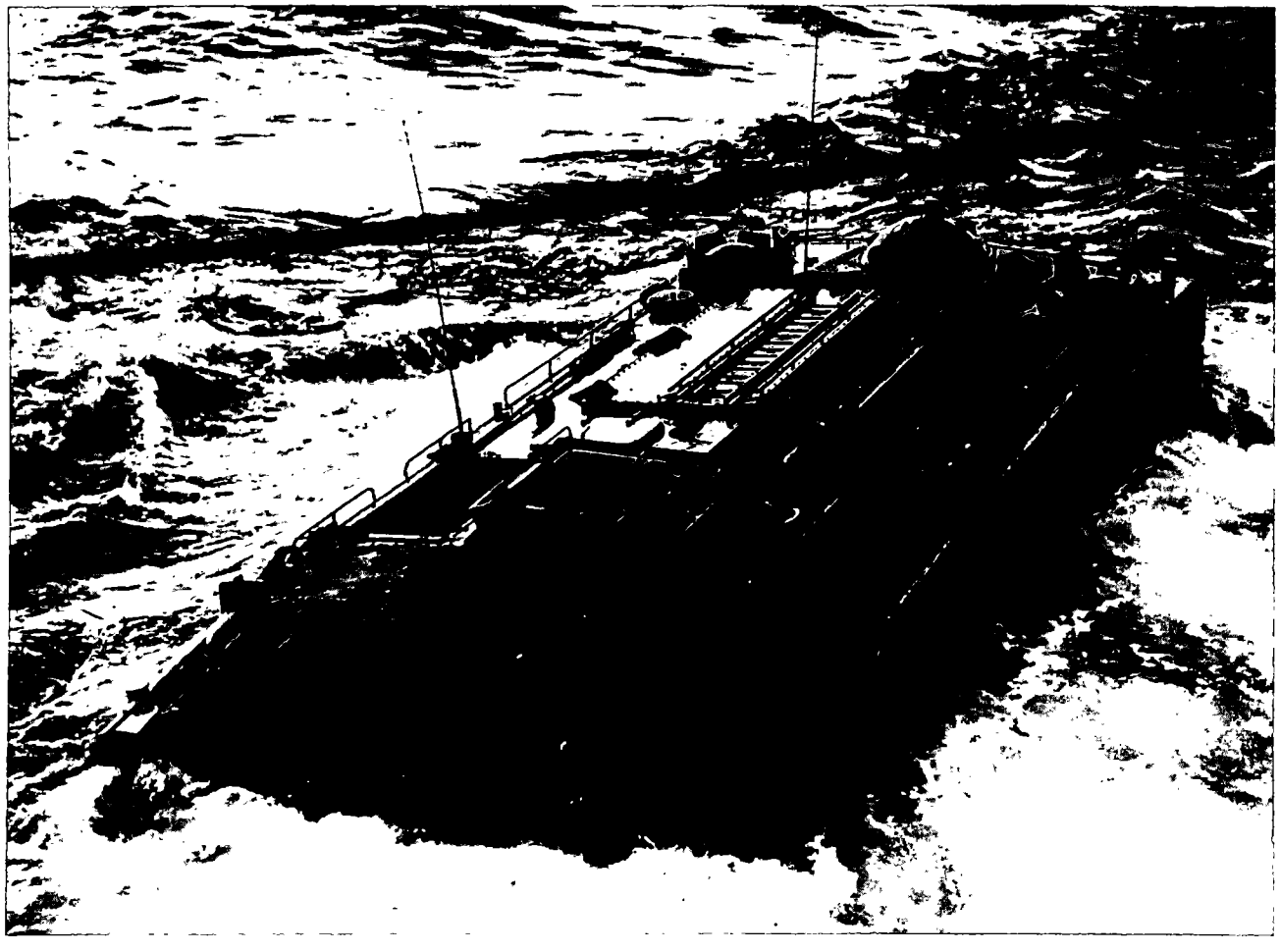

Figure 4–4. LVTP5 afloat after being launched from a landing ship.

Section IV. THE ENGINEER AMPHIBIOUS COMPANY, ENGINEER AMPHIBIOUS BATTALION

4–25. Mission

The mission of the engineer amphibious company is—

a. To provide the control and nucleus for the shore party of a brigade size landing force during amphibious or shore-to-shore operations.

b. To provide assistance in planning and executing amphibious and shore-to-shore operations including landings on a hostile shore and crossings of major rivers and other water barriers.

c. To undertake and carry out combat missions of an infantry unit when required.

4–26. Assignment

The engineer amphibious company is organic to the engineer amphibious battalion.

4–27. Capabilities

a. At full strength the engineer amphibious company provides—

(1) Command, staff planning, and supervision of the operations of two Battalion Landing Team (BLT) Shore Parties or one Brigade Landing Team Shore Party.

(2) Engineer amphibious combat support for two BLT beach support areas or a consoli-

dated brigade beach support area as follows:

(a) Breaching extensive natural and man-made beach obstacles.

(b) Detecting and removing mines within the beach support area.

(c) Constructing and maintaining beach exits.

(d) Destroying enemy beach fortifications.

(e) Performing other engineer work necessary to develop and expand beach capacities.

(f) Operational control of beaches.

(g) Providing local security for the beach support area.

(h) Erecting obstacles in the beach area.

(3) Establishment and operation of the following signal facilities for two BLT Shore Parties or one consolidated brigade beach support area.

(a) Message center, cryptographic, and radio teletypewriter service.

(b) Manual telephone switchboard and local telephone service.

(c) AM (voice and CW) and FM voice radio stations in the BLT and brigade radio nets.

(d) Trunkline and signal center service to shore party elements.

(e) Visual signals consisting of semaphore and blinkers for shore-to-ship and shore-to-shore communications.

b. The reduced strength column adapts this Table of Organization and Equipment to the lesser requirements for personnel and equipment for support of one BLT Shore Party.

c. This unit is not adaptable to a Type B organization.

d. Individuals of this organization can engage in effective, coordinated defense of the unit's area or installation.

4–28. Organization and Functions

The engineer amphibious company is organic to the engineer amphibious battalion and is organized under TOE 5–408 (fig. 4–5). It consists of a company headquarters, a signal platoon, an equipment and maintenance platoon and two shore platoons, which perform the following functions:

a. Company Headquarters. The company headquarters consists of the necessary personnel and equipment by which the company commander exercises command, control, and coordination of training programs and company operations. It provides mess, administration, and supply for the company. It also provides organizational maintenance for the arms organic to the company.

b. Signal Platoon. The signal platoon provides the communications personnel and equipment required to maintain an effective communications system for two battalion landing team shore parties and one brigade landing team shore party. Communications support provided includes—

(1) Message center and cryptographic support.

(2) Manual telephone switchboard and local telephone support.

(3) Teletypewriter, AM (CW and voice), and FM voice radio stations.

(4) Trunkline and signal center support.

(5) Organizational maintenance for organic radio equipment of the company.

c. Equipment and Maintenance Platoon. The equipment and maintenance platoon consists of a platoon headquarters, a maintenance section, and an equipment section. Platoon headquarters contains the command and supervisory personnel of the platoon. The maintenance section contains the personnel and equipment necessary to provide organizational maintenance for the wheeled and tracked vehicles of the company. The equipment section contains the operators and equipment necessary to provide limited equipment support to the two shore platoons of the company.

d. Shore Platoons. Each of the two shore platoons consists of a platoon headquarters and three pioneer and demolition squads. The shore platoons form the nucleus around which the attached elements of a battalion landing team shore party are organized. They perform beach reconnaissance, mark the beaches, and provide general engineer amphibious combat support.

4–29. Employment

a. The engineer amphibious company provides the control elements of a shore party for an assault brigade employing no more than two battalion landing teams assaulting two separate or adjoining

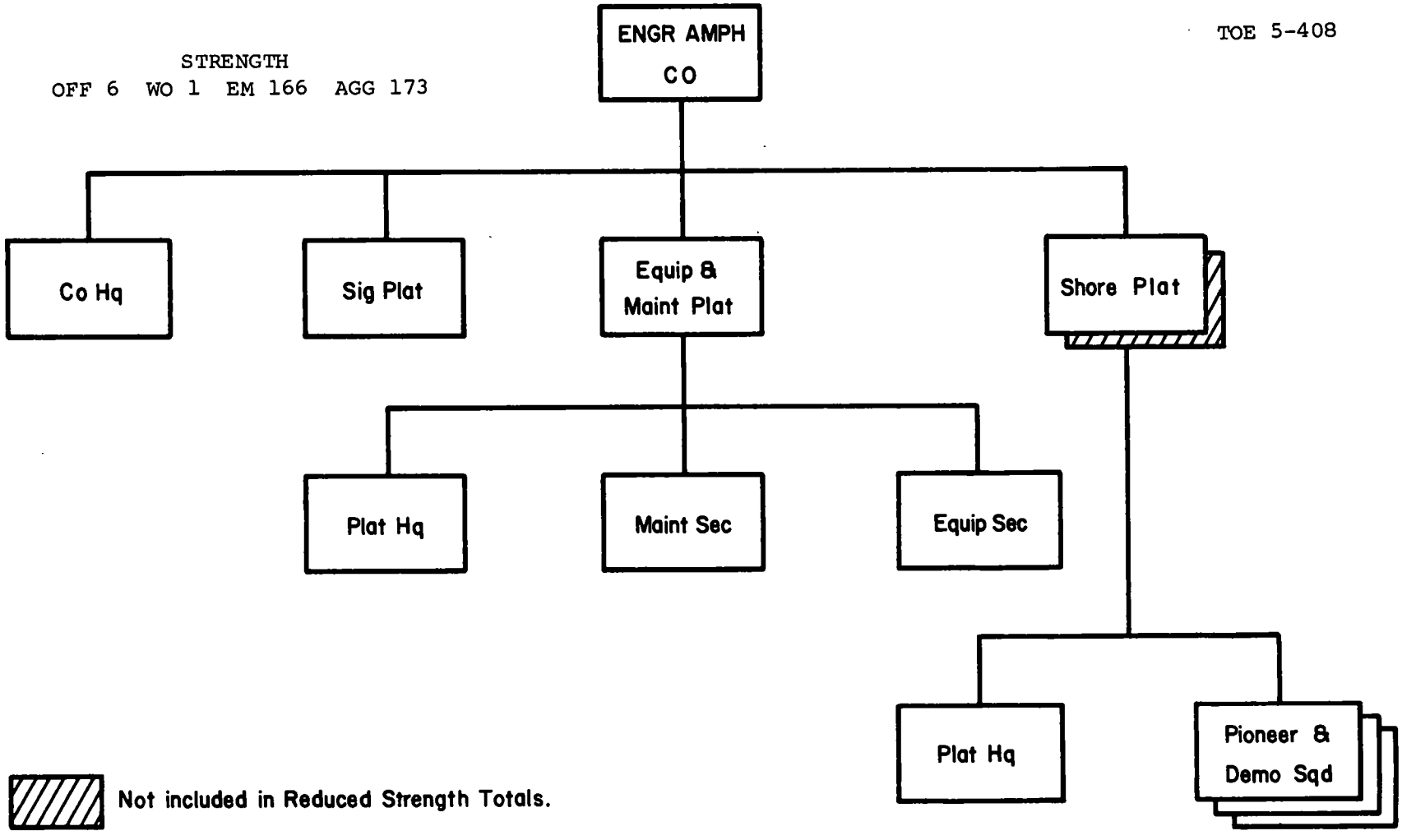

Figure 4–6. Organizational chart, engineer amphibious company, engineer amphibious battalion.

beaches. The two shore platoons form the nuclei of the shore parties for each of two BLT (numbered) beaches which may subsequently be consolidated into a brigade landing team (colored) beach. By itself the engineer amphibious company can provide—

(1) Reconnaissance of the beach area.
(2) Reduction of beach obstacles.
(3) Erection of beach markers.
(4) Combat construction on the beach and in the beach support area.
(5) Assistance to the assault troops in landing on and crossing the beach.

b. When augmented by the attached troops to form the shore party task organization, it can provide all necessary combat support and combat service support required on the beach and in the beach support area.

c. Normally the platoon leaders of the two shore platoons are designated as the shore party commanders of the two BLT shore parties. In some instances, however, the company commander and the executive officer of the engineer amphibious company may be designated as the shore party commanders of the two BLT shore parties. When the BLT shore parties are consolidated into a brigade shore party the company commander assists the battalion commander of the engineer amphibious battalion who is the brigade landing team shore party commander. The engineer amphibious company is given the letter designation of "C". For a more detailed discussion of the employment of the engineer amphibious company, see chapters 5 and 6.

4–30. Basis of Allocation

One engineer amphibious company is authorized for each engineer amphibious battalion.

4–31. Mobility and Category

a. This unit is one hundred percent mobile.

b. This unit is designated a category I unit (reference Unit Categories, AR 320–5).

4–32. Equipment

a. The equipment of the engineer amphibious company consists mainly of communications equipment, engineer construction equipment, wheeled vehicles, LARC–V's, and CEV's (see *b* and *c* below), demolition equipment, and necessary housekeeping and maintenance equipment. Armament is limited to rocket launchers, machineguns, rifles, and pistols. For a detailed listing of this equipment, see TOE 5–408.

b. Organic to each engineer amphibious company are four lighters, amphibious, resupply cargo, 5-ton (LARC–V). The LARC–V is a wheeled amphibious vehicle capable of carrying five tons of cargo. The LARC–V is used by the shore party for a variety of lighterage tasks. For a discussion of the communications equipment organic to the LARC–V, see appendix N. For a description and illustration of this vehicle, see appendix G.

c. There are two combat engineer vehicles (CEV) organic to each engineer amphibious company. The CEV is a full-tracked vehicle which consists of a tank hull with a front-mounted, hydraulically-operated bulldozer surmounted by a turret bearing a 165-mm demolition projector, a retractable boom of welded tubular construction, and a winch. The CEV is used to provide direct and general engineer support of tactical units in the destruction of roadblocks, barriers, emplacements, strong points, and other obstacles impeding movement in or near the beach support area. It is also used to construct combat roads, trails, and avenues of approach in support of offensive operations. See FM 5–1 for more details on the CEV.

CHAPTER 5

SHORE PARTY TASK ORGANIZATION, PLANS, AND ORDERS

Section I. SHORE PARTY TASK ORGANIZATION

5–1. General

The success of an amphibious operation is dependent in great part on the ability of the landing force to establish its assault elements ashore rapidly and effectively. To assist these elements in their movement across the beach and inland, a task organization called a shore party is organized. The need for shore parties results from two conditions—

a. Landing beaches are basically an obstacle to be crossed by assault elements of the landing force. Specialized support elements are required to clear obstacles and develop the beach area.

b. When executing an amphibious assault, the landing force elements are separated from the normal combat service support systems. Shore parties provide interim combat service support and initiate the staged or progressive development of the combat service support system in the objective area.

5–2. Shore Party Definition

A shore party is a task organization of the landing force formed for the purpose of facilitating the landing and movement off the beaches of troops, equipment, and supplies; for the evacuation from the beaches of patients and prisoners of war; and for facilitating the beaching, retraction, and salvaging of landing ships and craft. It comprises elements of both the naval and landing forces.

5–3. Shore Party Requirements

Shore parties are usually provided as follows (table 5–1):

a. Battalion Landing Team Shore Party (BLTSP). A BLTSP is required for each battalion landing team which lands over a landing beach in the initial assault.

b. Brigade Landing Team Shore Party (Bde LTSP). When a brigade landing team is employed as a subordinate echelon of the landing force with responsibility for establishment or operation of a beach support area, a brigade shore party is required.

c. Division Shore Party. One division shore party is required for each assault division.

d. Corps Shore Party. One corps shore party is required for each assault corps.

5–4. Functions of the Shore Party

In the accomplishment of its mission, the landing force element of the shore party performs tasks inland from the water's edge while those to seaward are performed by the naval element of the shore party. All shore party tasks are performed under the command of the shore party commander (the commander of the engineer amphibious organization assigned to the landing force) designated by the landing force commander. The functions performed by the shore party are thus divided into two categories; those performed by the landing force elements and those performed by the naval elements.

5–5. Functions of the Landing Force Element

The landing force element of the shore party performs a variety of functions on the beach and in the beach support area. Typical of these are—

a. Marking limits of the beach and unloading points.

b. Designating and marking where landing ships and craft will beach and where causeways will be placed.

c. Designating and marking appropriate landing sites for helicopters.

Table 5-1. Type landing forces and shore parties.

Landing Force	Formation	Type of Beach	Supporting Engineer Amphibious Organization	
			Composition	Mission
Bn Ldg Tm (BLT)	2 assault companies abreast, reserve company and headquarters and headquarters company following.	One Numbered Beach	1 Engr Amph Bn (-) 1 Hq & Hq Co (-) 1 Engr Amph Co (-) 1 Engr Amph Aslt Co Attached Units	Provides: BLT shore party, ship-to-shore and inland mobility for assault element of one battalion.
Bde Ldg Tm (BdeLT) (3 Battalions)	2 battalions abreast, reserve battalion following.	One Colored Beach (Two numbered beaches)	1 Engr Amph Bn 1 Hq & Hq Co 1 Engr Amph Co 2 Engr Amph Aslt Co Attached Units	Provides: BdeLT shore party, ship-to-shore and inland mobility for assault element of one brigade.
Div Ldg Force (3 Brigades)	(a)2 brigades abreast, reserve brigade following.	Two Colored Beaches (Four numbered beaches)	1 Engr Amph Gp 2 Engr Amph Bn Attached Units	Provides: Div shore party and ship-to-shore and inland mobility for the assault element of two brigades.
	(b)3 brigades abreast.	Three Colored Beaches (Six numbered beaches)	1 Engr Amph Gp 3 Engr Amph Bn Attached Units	Provides: Div shore party and ship-to-shore and inland mobility for the assault element of three brigades.
Corps Ldg Force (3 Divisions)	(a)2 divisions abreast, reserve division following.	Four Colored Beaches (Eight numbered beaches)	1 Engr Amph Bde 2 Engr Amph Gp 4 Engr Amph Bn Attached Units	Provides: Corps shore party and ship-to-shore and inland mobility for the assault element of two divisions.
	(b)3 divisions abreast.	Six Colored Beaches (Twelve numbered beaches)	1 Engr Amph Bde 3 Engr Amph Gp 6 Engr Amph Bn Attached Units	Provides: Corps shore party and ship-to-shore and inland mobility for the assault element of three divisions.

d. Locating and establishing beach dumps and supply points, including amphibious assault fuel facilities.

e. Assisting troop units in landing and moving across beaches.

f. Marking or removing mines and obstacles in the beach support area (BSA) which are hazardous to landing ships, craft, vehicles, and helicopters.

g. Constructing and maintaining beach lateral and exit roads.

h. Establishing and operating information centers, and maintaining current situation maps to assist units which have landed.

i. Controlling traffic in the BSA.

j. Maintaining communications with troop commanders of both the waterborne and helicopterborne assault units and tactical logistical groups for control purposes.

k. Establishing lateral communications between beaches and landing zones.

l. Marking contaminated portions of the BSA, and decontaminating those areas that are essential for use.

m. Evacuating patients and prisoners of war. In counterinsurgency operations, the evacuation of refugees as required.

n. Providing emergency vehicle repairs and dewaterproofing facilities for vehicles landed in the waterborne assault.

o. Maintaining a continuous record, by category, of units, equipment, and amounts of both military and civilian supplies landed.

p. Controlling the movement of amphibian vehicles carrying supplies; unloading supplies from beached landing craft, ships, and helicopters; and moving these supplies to inland dumps or using units as required.

q. Providing security for dumps and supply points.

r. Providing local security and coordinating the defense of the BSA.

s. Initiating, as directed, civil affairs procedures in the BSA.

t. Initiating, as directed, military civic actions, psychological operations, and specified intelligence functions when the landing is in support of counterinsurgency operations.

u. Establishing and maintaining, as a part of the overall landing force warning system, a system to warn of air, ground, and CBR attack within the BSA.

v. Providing graves registration services, as directed.

w. Constructing helicopter landing sites within the BSA.

x. Loading helicopters with supplies for further delivery inland.

y. Providing and operating ship-to-shore bulk POL transfer system for the landing force.

5–6. Functions of the Naval Element

The naval element of the shore party performs the following functions:

a. Providing navigational aids and marking hazards to navigation in the vicinity of beaches.

b. Determining and advising shore party commanders of landing points suitable for landing amphibious vehicles, landing craft, landing ships, and beaching of pontoon causeways from the viewpoint of hydrographic and beaching conditions.

c. Directing beaching and retraction of landing ships and craft.

d. Salvaging landing craft and amphibious vehicles as required.

e. Effecting emergency repairs of landing craft.

f. Removing underwater obstacles in the beach approaches.

g. Assisting in local security of the BSA.

h. Maintaining communications with designated navy commanders and navy control units afloat, and between adjacent beach parties.

i. Assisting in evacuating patients, prisoners of war, and refugees.

j. Improving beach approaches from seaward and marking slots for landing ships and large craft.

k. Controlling waterborne traffic near beaches.

l. Providing and operating, as required, pontoon causeways, self-propelled pontoon barges, warping tugs, transfer barges, and controlling of off-shore cargo transfer operations.

m. Providing and operating ship-to-shore bulk POL systems for shore based naval elements.

n. Advising the shore party commander of navy activities in the vicinity of the beaches.

5–7. Shore Party Support Organizations

a. During an amphibious operation, combat support and combat service support organizations are tailored to the amphibious force and are attached to the shore party to form the task organization and provide combat support and interim combat service support during the assault phase of the landing. For a field army amphibious operation, combat service support units of the field army support command (FASCOM) and nondivisional combat support units would be attached to the shore party to form the task organization. For an independent corps amphibious operation, a corps support command (COSCOM) and nondivisional combat support units would be attached. For an independent infantry division task force amphibious operation, a support brigade for a division size task force, and nondivisional combat support units would be attached. Type shore party task organizations for an independent corps and independent division operation are shown in paragraph 5–8. For a detailed discussion of the field army combat service support units, see FM 54–3 and FM 54–4. Details of the nondivisional combat support units are contained in applicable branch manuals.

b. When a base development is planned, representatives of the theater army support command are landed early to establish liaison with the shore party headquarters. When the shore party is dissolved, theater army units replace the field army combat support and combat service support units.

5–8. Shore Party Task Organization

The shore party, as a task organization, is tailored for a particular operation. However, consideration should be given to the need for the following type landing force and naval units for the various type landing forces shown below:

a. Corps Shore Party. For an independent corps landing with two assault divisions landing abreast, consideration should be given to the need for the following units to form the shore party task organization.

CORPS SHORE PARTY HEADQUARTERS

1 Engineer Amphibious Brigade (Corps Shore Party Headquarters)
- 2 Engineer Amphibious Groups (Div Shore Party Headquarters)
  - 4 Engineer Amphibious Battalions (Bde & BLT Shore Party Hq)

CORPS SHORE PARTY SUPPORT (ATTACHED ORGANIZATIONS)

Combat Service Support Units (COSCOM)

1 Support Brigade COSCOM
- 1 Support Brigade HHC (+)
- 1 Inventory Control Center (Reduced strength)
- 2 General Support Groups
- 2 Direct Support Groups
- 1 Direct Support/General Support Group (Rear)
- 1 Transportation Group
- 1 Medical Group
- 1 Replacement Battalion (+)
- 1 Ammunition Direct Support/General Support Group
- 1 Military Police Group
- 1 Civil Affairs Group (—)
- 1 Data Processing Unit
- 1 Personnel Services Company
- 1 Transportation Car Company
- Army Postal Units
- Finance Funding Teams

Combat Support Units

1 Engineer Brigade (Corps) (Consisting of two type engineer combat groups)
2 Engineer Pipeline Construction Support Companies
1 Signal Group
1 Chemical Group

Other Support Organizations

2 Transportation Terminal Battalions
- (1 Transportation Light Amphibian Company)
- (1 Transportation Heavy Amphibian Company)
- (2 Transportation Terminal Service Companies)

Naval Elements

2 Naval Beach Groups

b. Division Shore Party. For an independent division landing force with two assault brigades landing abreast and one brigade following, consideration should be given to the need for the following units to form the shore party task organization.

DIVISION SHORE PARTY HEADQUARTERS

1 Engineer Amphibious Group (Division Shore Party Headquarters)
  2 Engineer Amphibious Battalions (Bde & BLT Shore Party Hqs)

DIVISION SHORE PARTY SUPPORT (ATTACHED ORGANIZATIONS)

Combat Service Support Units (Support Brigade for a Division Size Task Force)

1 Support Brigade (Division Task Force)
  1 Support Brigade HHC (+)
    1 Military Police Company (+)
    1 Finance Disbursing Section
    1 Personnel Service Company (Type "B")
    2 Army Postal Units (Type "E")
    1 Civil Affairs Group (—)
    1 Replacement Company
    1 Inventory Control Center (Reduced strength)
    1 Signal Operations Company, Small headquarters
  1 Direct Support/General Support Group
    1 Direct Support/General Support Group HHC
    1 Division Maintenance Direct Support Company
    1 Supply and Services General Support Battalion
    1 Maintenance General Support Battalion
    1 Supply and Maintenance Direct Support Battalion
  1 Ammunition Direct Support/General Support Battalion
    1 Direct Support/General Support Battalion HHC
    1 Special Ammunition Direct Support Co (Reduced strength)
    1 Ammunition DS/GS Company (Reduced strength)
    1 Hawk Support Platoon
    1 Missile and Rocket Explosive Repair Section
  1 Transportation Battalion
    1 Transportation Battalion HHD
    1 Light-Medium Truck Company
    1 Transportation Medium Helicopter Company
    1 Transportation Car Platoon
    1 Transportation Heavy Truck Platoon
    1 Transportation Light Truck Platoon
    1 Transportation Terminal Transfer Unit
  1 Medical Group
    1 Medical Group HHD
    1 Mobile Army Surgical Hospital
    1 Evacuation Hospital
    1 Medical Collecting Company
    1 Medical Clearing Company
    1 Medical Ambulance Company
    Medical Teams (TOE 8–500) (As required)

Combat Support Units

1 Engineer Combat Group
1 Engineer Pipeline Construction Support Company
1 Chemical Battalion
2 Signal Companies

Other Support Organizations

1 Transportation Terminal Battalion
  1 Transportation Terminal Service Company
  1 Transportation Light Amphibian Company (—)
  1 Transportation Heavy Amphibian Company (—)

Naval Elements

1 Naval Beach Group

c. Brigade Landing Team Shore Party. Elements of the combat support and combat service support units, initially attached to the division shore party, are further attached to each separate brigade landing team shore party. The nucleus for the brigade landing team shore party is the engineer amphibious battalion which operates a colored beach (two numbered beaches) in support of an assault brigade landing. Normally, the brigade landing team shore party consists initially of two separate battalion landing team shore parties (BLTSP) supporting the two assault battalions of the assault brigade. The necessary combat support and combat service support elements are attached to the BLTSP's to support the assault battalion landing teams.

d. Battalion Landing Team Shore Party (BLTSP). The BLTSP conducts shore party operations

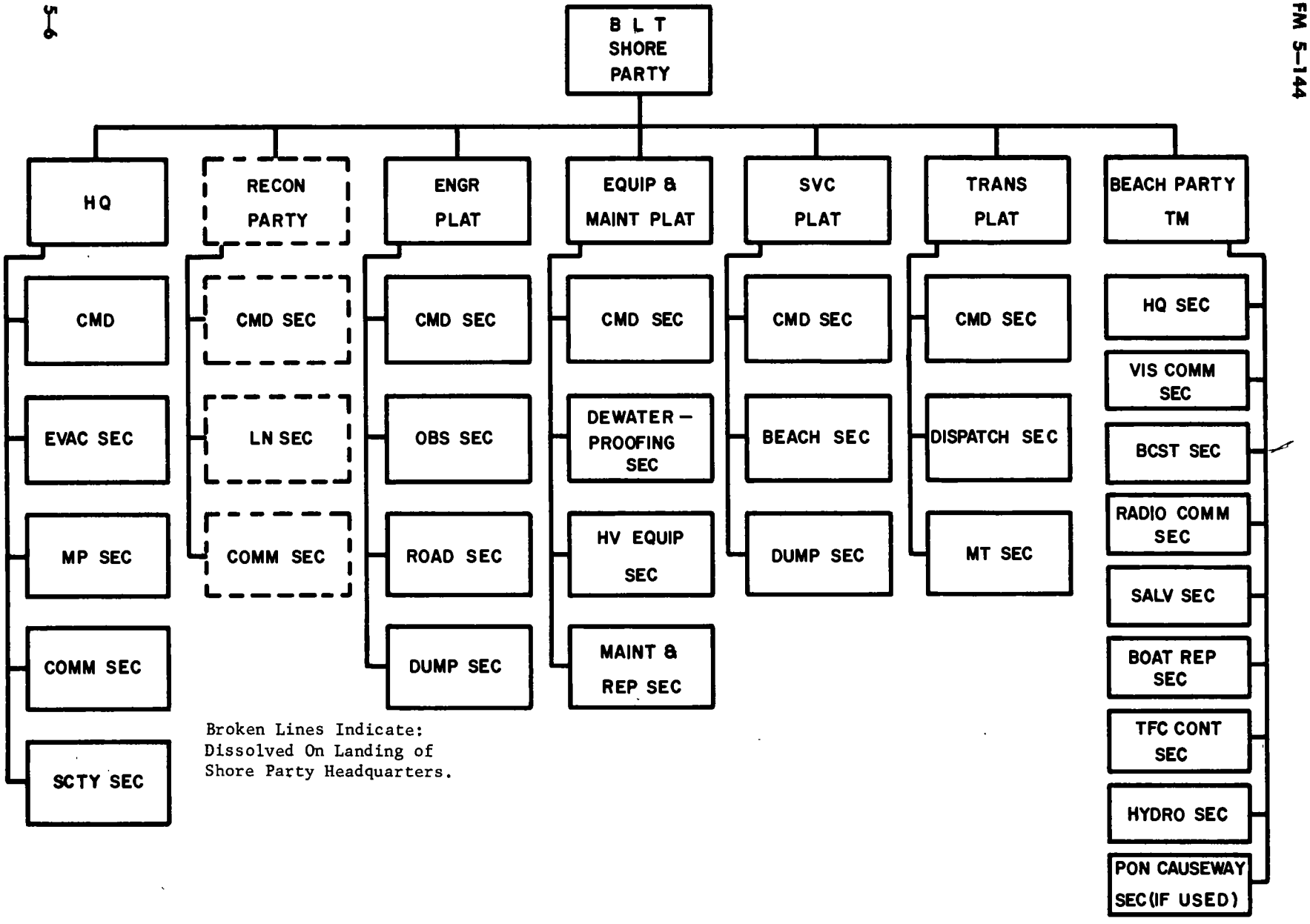

Figure 5-1. Type battalion landing team shore party task organization.

normally remain aboard ship to assist the navy until the assault shipping is unloaded.

d. Communications. TAC–LOG groups communicate over landing force radio nets. Communications equipment for the brigade landing team and battalion landing team TAC–LOG groups are furnished by the parent tactical unit. Communications for the division TAC–LOG group are provided by the division signal unit. TAC–LOG's maintain communications with tactical commanders, logistic agencies, and in particular, with the shore party echelons ashore. As soon as reconnaissance elements of the BLT shorc parties land and establish communications, they relay requests for troop serials and supplies from the tactical commanders ashore to TAC–LOG groups on the control ships. Except in emergencies, all requests are made via the shore party. To assure expeditious handling in the beach support area, TAC–LOG groups keep shore party commanders advised as to status of supplies or serials requested, as well as time they cross the line of departure.

e. TAC–LOG Tasks. A TAC–LOG group performs the following tasks during the ship-to-shore movement:

(1) Keeps appropriate commanders of the landing force informed as to the progress of the ship-to-shore movement.

(2) In coordination with the navy control agency, expedites the landing of troops, equipment, and supplies in accordance with plans and orders, or as requested by the appropriate troop commander.

(3) Advises the navy control officer as to the location of troop units, equipment, and supplies.

(4) If adjustments are ordered in the sequence of landing, assists the navy control officer in making such adjustments.

(5) Maintains a detailed account of the status of unloading and landing, including a record of dispatch time and arrival time of each serial at the beach.

6–3. Communications in Amphibious Operations

a. The joint nature of amphibious operations requires detailed coordination and planning for communications. The communications systems of each service involved must be integrated into a single effectivc system through the use of compatible equipment and the employment of common procedures contained in appropriate joint Army-Navy-Air Force publications. The communications systems of participating service components remain intact but are interconnected by means of lateral circuits and coordinated by using common procedures. The commander of the joint amphibious task force is responsible for coordination and providing supplemental communications means until such time as the landing force commander assumes responsibility for his own communications system. Plans must be made by the landing force commander to establish reliable communications ashorc as rapidly as possible in order to relieve the congestion on initial assault radio facilities. Therefore, wire equipment and installation teams are offloaded early and wire circuits are installed ashore as early as possible. These initial links are constantly improved, expanded, and consolidated.

b. In the initial phases of an amphibious operation, great reliance must be placed on radio, since much of the communication is over open expanses of water. Visual signals also are used extensively where not restricted by line-of-sight. Because of heavy demands on radio, net discipline must be maintained to insure passage of essential traffic. These means are supplemented by wire communication installed during establishment and consolidation of the beachhead. Messengers (land, sea, and air) are employed for transmission of bulk messages ship-to-shore and between ships or shore points. Visual means in the nature of colored panels and signs are used for beach markings. Sound signals are used for alerting and emergency alarms, unless excessive battle noises or distance preclude their effectiveness. For a more detailed discussion of signal/communications planning for an amphibious operation see FM 31–11 and FM 31–12.

c. The shore party uses all primary means of communication (messenger, wire, radio, and radio relay) as well as supplementary means (visual and sound). In addition to normal communications equipment available to the shore party organization such as radio, telephone, radio relay, teletype, and cryptographic devices, the shore party utilizes public address systems, electronic megaphones, and

various signal lights. Supplementary communications are afforded the shore party by the naval component of the shore party. The nets of the naval component of the shore party generally parallel shore party troop radio nets seaward, for example, from the beach to TAC–LOG's aboard control ships and transports. In addition to the ship-to-shore communications mentioned above, the underwater wire communications system, a simple two-way field telephone communication from ship-to-shore, laid along the ocean floor to its buoy terminal is also used. Primary sources of shore party communications are the communications section of the engineer amphibious company and the headquarters and headquarters company of the engineer amphibious battalion.

6–4. BLT Shore Party Communications

The beach support area communications are progressively developed. Initially, radio is the primary means with wire being installed as soon as the situation permits. Radio communications are employed between the BLT shore party command post, BLT command post, BLT TAC–LOG, and adjacent shore parties. Wire is utilized between the BLT command post and the BLT shore party command post, paralleling radio communications. Wire is also used between the BLT shore party command post and the dumps or supply points (fig. 6–2). A liaison section (normally a shore party officer or NCO and signalmen) lands with the BLT headquarters. This liaison party remains with the BLT headquarters and establishes both radio and wire communications with the BLT shore party headquarters. The rest of the shore party lands and establishes communications with adjacent shore parties and supported units. Requests reach the shore party headquarters from the BLT over wire or radio. The BLT shore party requests the landing of supplies, including emergency requests from the BLT, over radio nets, underwater wire, or by visual signal, to brigade and BLT TAC–LOG afloat.

6–5. Brigade Shore Party Communications

When the brigade shore party is established ashore, the brigade shore party commander takes control of the BLT shore parties and responsibility for the two numbered beaches operated by the BLT shore parties. Communications are established from the BLT shore parties to the brigade shore party supporting the tactical brigade and from the brigade shore party to the tactical brigade. Requests for supplies and equipment then flow from the tactical battalions to the tactical brigade over

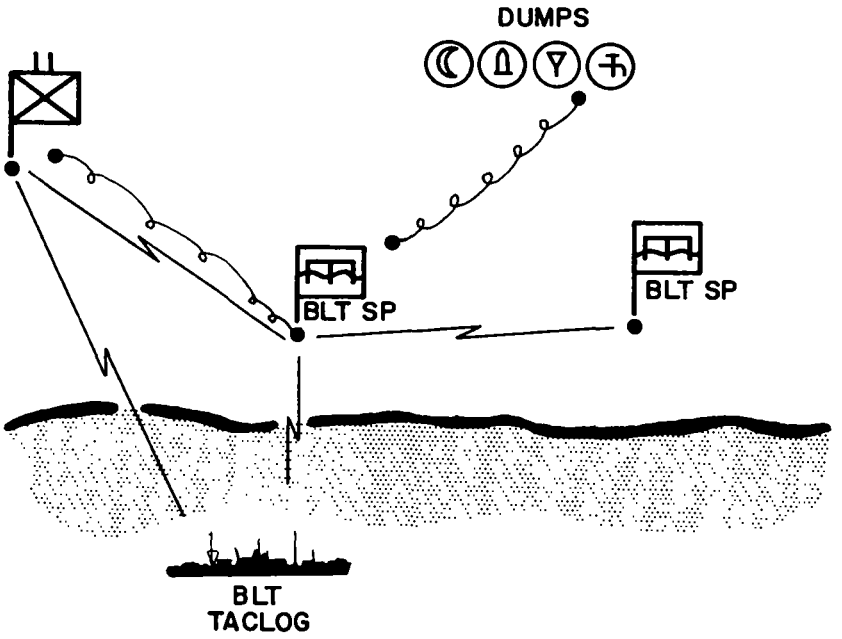

Figure 6–2. BLT shore party communications.

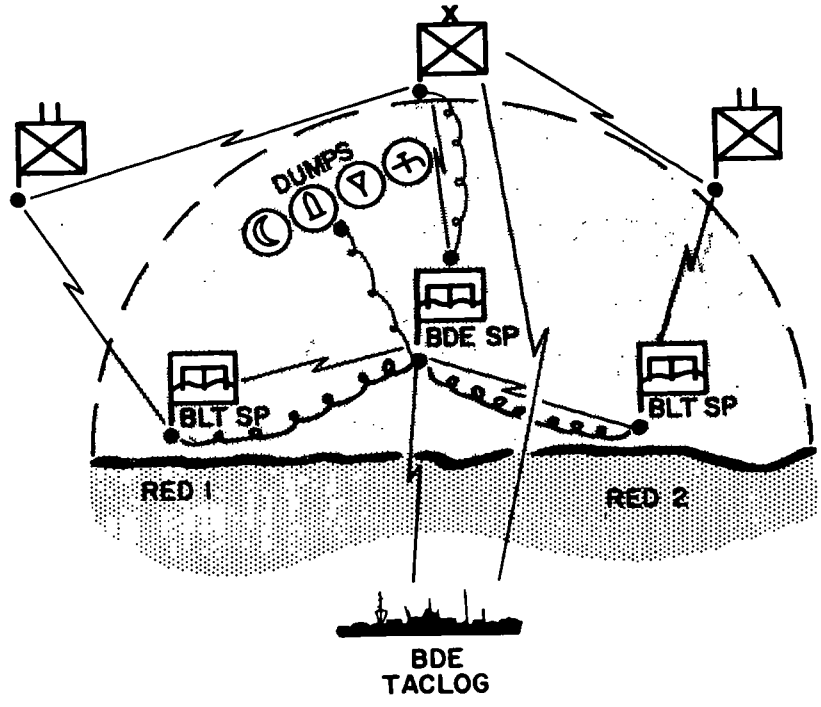

Figure 6–3. Brigade shore party communications.

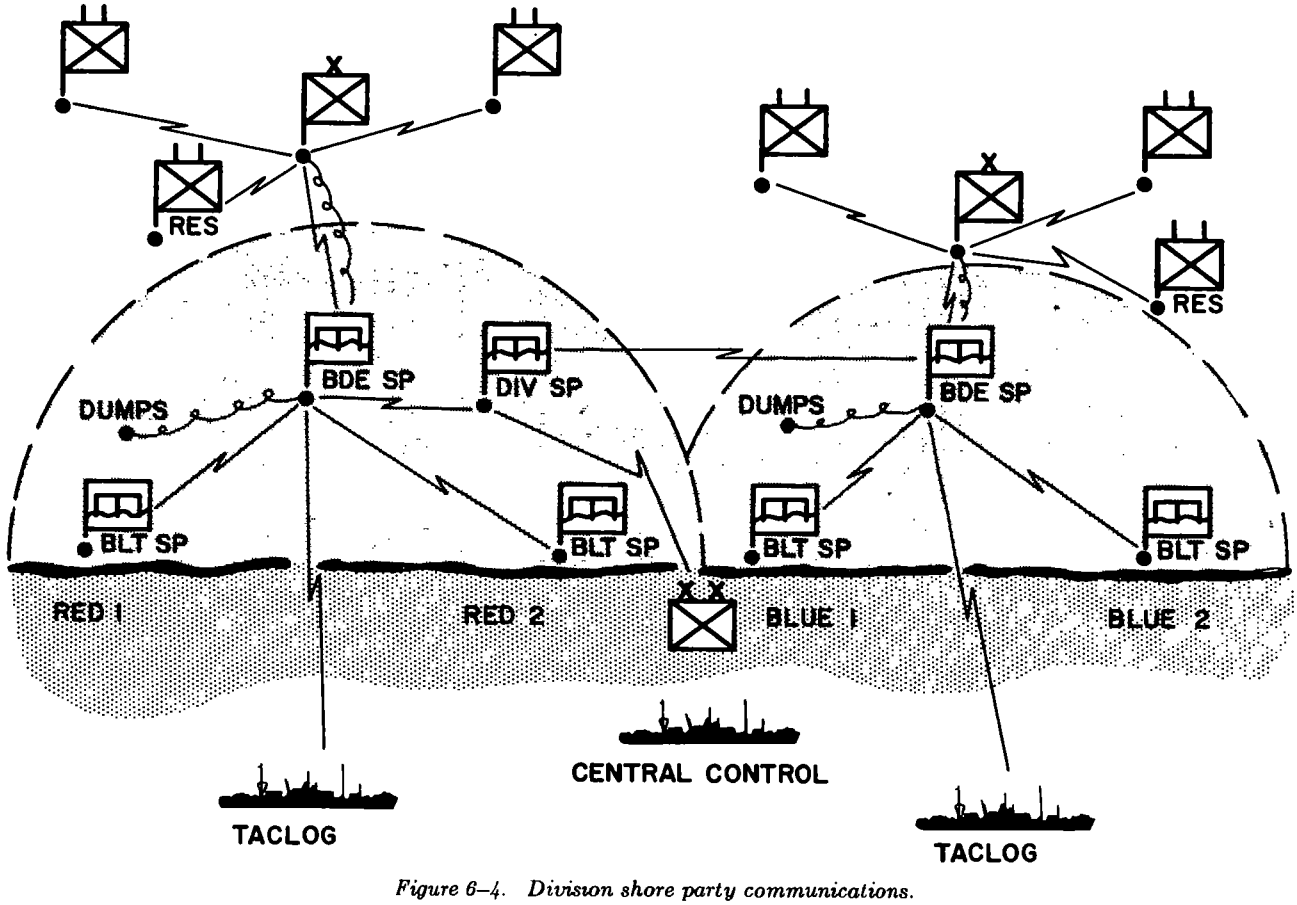

Figure 6–4. Division shore party communications.

the tactical brigade radio, wire, and integrated wire-radio systems. The tactical brigade then transmits all requests for supplies and equipment to the brigade shore party for action. In emergencies, the tactical brigade transmits its requests directly to the brigade TAC–LOG group and then notifies the brigade shore party of the requests (fig. 6–3).

6–6. Division Shore Party Communications

The division shore party CP is established in one of the beach support areas. The division shore party coordinates operations in the BSA's. Typical division shore party communications are shown in figure 6–4. Various radio nets used by the division shore party for logistic communications are—

a. Division Shore Party Control Net. Provides a net for coordination and control of supplies landed over the beaches.

b. Division Shore Party Command Net. Parallels the division shore party control net providing means by which the division shore party commander exercises command over subordinate shore party elements.

c. Shore Party Local Net. Radio communications within shore party elements are carried over this net. It is of particular use during the ship-to-shore movement.

Section II. INITIAL ACTIONS ASHORE

6–7. General

a. Although some units may be projected ashore by air means, the bulk of the force is projected ashore by surface means. These may include amphibious tractors, amphibious trucks, and landing ships and craft. This requires the establishment of a combat service support area in proximity to the beach. Initially, assault elements of combat units are provided combat service support by the mode of transportation in which they go ashore. Certain of the amphibious tractors or landing craft are designated as floating dumps to carry supplies and carry additional ammunition, rations, and water for the assault element. Subsequently, combat service support is provided from sources ashore or afloat utilizing available surface or air means. The shore party is organized and trained to solve the problem of providing adequate interim combat service support to units of the landing force before sufficient time and space are available to permit establishment of normal combat service support systems ashore. The shore party insures that supplies are available to combat units at the time required, in sufficient quantity, and in a usable condition. The landing force tactical organization and the plan for landing provide the basis for establishing the concept for shore party operations.

b. The establishment and operation of shore parties ashore normally takes place in four phases as follows:

(1) The assault elements of the landing force land, accompanied by elements of their shore parties.

(2) The reinforced shore platoons of the engineer amphibious company, engineer amphibious battalion, land on BLT (numbered) beaches and establish an area of operations; movement of units, equipment, and supplies to the shore begins. When the commander of the engineer amphibious company lands, he begins consolidation of the two BLT (numbered) beaches into a brigade (colored) beach.

(3) The commander of the engineer amphibious battalion (brigade shore party commander) lands with the commander of the tactical brigade, assumes command of the brigade landing team shore party, and completes consolidation of the two BLT (numbered) beaches into a brigade (colored) beach.

(4) The commander of the engineer amphibious group (division shore party commander) lands with the division commander and begins consolidation of the brigade beaches into a division beach.

c. When a corps landing is undertaken, the commander of the engineer amphibious brigade (corps shore party commander) lands and consolidates the division beaches into a corps beach.

have the supplies placed in landing craft, or amphibious vehicles which then report to the primary control vessel for dispatch to the beach.

e. After the brigade landing team headquarters has landed, the BLT commander requests supplies from the brigade landing team, which directs the brigade landing team TAC–LOG group to have them sent ashore. When this is done, the brigade landing team notifies the shore party of the action taken.

f. As soon as the shore party is capable of unloading more supplies than are being requested by the units ashore, the shore party commander requests that additional supplies be landed. The remainder of the floating dump supplies are then unloaded and placed in beach dumps. Additional supplies embarked in ships are landed, and the beach dumps are gradually expanded so that all requests can be filled. When distances are short from the beach to the combat troops, combat service support troops of the assault units may be available to help the shore party. Units then draw their supplies directly from the beach dumps.

g. When the company headquarters of the engineer amphibious company is established ashore, it assumes control of the BLT beaches and begins consolidation of the BLT shore parties into a brigade shore party. The company commander is followed ashore by the commander of the engineer amphibious battalion, who assumes command of the brigade shore party and completes consolidation of the two BLT (numbered) beaches into a brigade (colored) beach. At this time, the brigade shore party commander may recommend to the division shore party commander that general unloading begin.

h. The brigade landing team commander assumes responsibility for supply when he has sufficient combat service support troops and equipment ashore to commence executing the plan of supply. Initially, the distributing points are the beach dumps. As the attacking forces advance, the brigade landing team establishes distributing points inland and ceases to operate from the beach dumps as soon as the supplies in these dumps have been issued. If the division support command is ashore and the division commander assumes supply responsibility, the brigade landing team operates according to the supply instructions contained in the division order.

i. The shore party commander is responsible for building up supplies ashore initially in accordance with the supply levels prescribed by the division commander. This buildup cannot begin until the beach dumps are ready to receive supplies and equipment. When the supplies from floating dumps are unloaded, those not issued to assault units to fulfill their requests are placed in the appropriate beach dumps. The shore party commander then determines the types and quantities of supplies needed to reach the prescribed D-day levels, and notifies the TAC–LOG group of his requirements.

6–12. Shore Party Identification

a. To facilitate recognition, all army personnel of the shore party wear a red patch one inch wide and two inches long on the outside of each trouser leg at the knee. Navy members of the shore party wear a corresponding yellow patch.

b. All trucks working for the shore party should be plainly marked to assist in control. The commander of the attached truck unit should be designated to supervise the dispatching and maintenance of all trucks hauling cargo.

Section III. BEACH SUPPORT AREA

6–13. General

a. After the most essential beach facilities have been provided, the commander of the engineer amphibious group (division shore party commander) proceeds to organize the beach progressively according to plan. In a multiple-beach landing, one beach will probably be selected for complete development into a beach support area for the landing force (fig. 6–5).

b. The beach support area is the area to the rear of the landing force or the elements thereof, which is established and operated by shore party units, and which contains the facilities for the unloading of troops and materiel for the support of the forces ashore; it includes facilities for the evacuation of patients, prisoners of war, and captured materiel. It may be divided into zones of action, and each zone assigned to a subordinate shore party. One

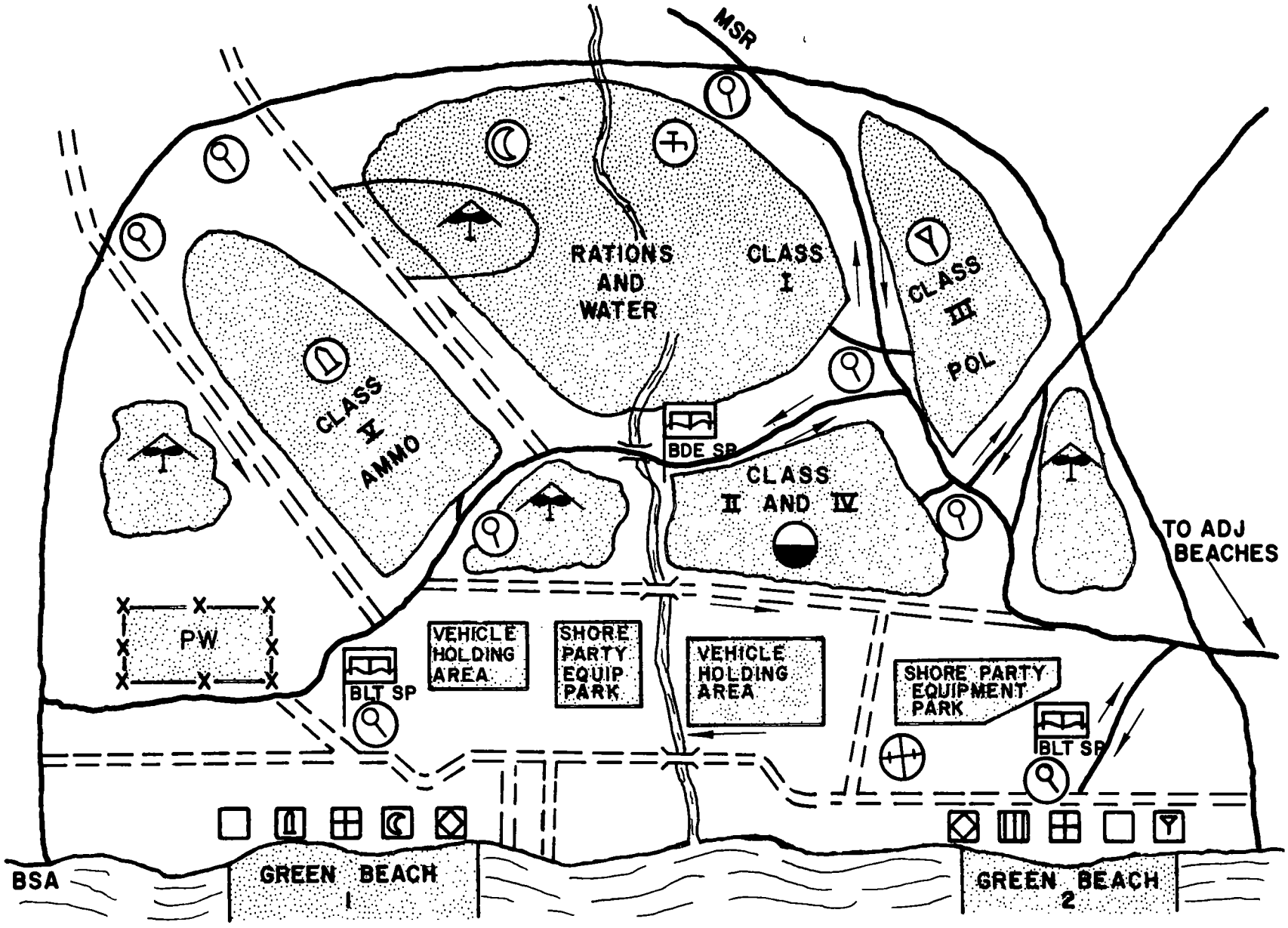

Figure 6–5. Type beach support area (BSA) developed by a brigade landing team shore party.

6–45. Night Operations

a. At night, beach operations are conducted under artificial illumination. If possible, shift changes should take place in daylight hours, so that night-shift personnel can become oriented before darkness. Any night operation hazards should be clearly marked before nightfall.

b. An adequate warning system, and central control of floodlighting equipment, are essential, so that the beach can be blacked out in case of an enemy air attack.

6–46. Messing

a. Initially, shore party personnel carry combat rations ashore. As soon as conditions permit, company kitchens are established, and hot food is transported in insulated containers to the working areas.

b. When 2-shift operation is initiated, mess personnel are also divided into shifts. Usually, the mess steward supervises the day shift, and the senior cook is in charge of the night shift. Breakfast may be served to men going on shift, and combat rations distributed to them, with supper served immediately after the shift completes its tour of duty. Hot meals served on the job are preferable to combat rations and should be provided whenever possible.

c. In addition to providing meals for its own personnel, the battalion headquarters mess will be required to feed observers, casuals, correspondents, and similar transients. Additional rations should be secured and kept in reserve for unexpected visitors.

6–47. Sanitation

Special attention must be given to beach sanitation from the time of landing. The large numbers of troops on the beach require strict sanitary discipline and adequate facilities. Latrines, properly marked; should be dug as soon as possible, and made accessible to debarking troops. Shore party medical personnel must exercise close supervision over sanitary measures throughout the beach support area, particularly in the vicinity of medical installations, and in other places where concentrations of personnel occur.

6–48. Bivouac Areas

Shore party bivouac areas are established in the vicinity of the beach perimeter, so that defenses can be manned readily in the event of an enemy attack. Bivouac areas must also be provided for transients.

Section VII. DEFENSE OF THE BEACH SUPPORT AREA

6–49. Beach Support Area Defense

a. Responsibility. The BSA defense mission normally is assigned to the shore party commander in the landing force operation order. BSA defense plans are based on the planned scheme of maneuver and the anticipated tactical situation during the assault phase. In preparing the defense plan, the shore party commander considers the use of all personnel located in the BSA, regardless of whether they are a part of the shore party task organization. In internal defense operations, the shore party commander must insure that the defense plan provides for the selective application of firepower in order to protect the local civilian populace and their material from unnecessary damage or destruction.

b. Beach Support Area Defense Plan. The BSA defense plan is generally included as an appendix to the shore party plan of the operations order. This plan is broad in nature. The details of how the shore party commander plans to organize his defense is contained in an annex to the shore party operations order, or is issued as a separate operations order by the division shore party commander. Regardless of how it is issued, the BSA defense plan calls for an area defense, assigning area responsibilities to subordinate shore party units. Within these areas of responsibility, the senior shore party officer has complete responsibility for the coordination of all ground defense elements that may be located therein. The BSA defense plan consists of the following essential elements:

(1) *Task organization.* The task organization parallels the shore party task organization. The shore party organization serves as the nucleus of the BSA defense force.

(2) *Assignment of missions.* Normally, the area of defense assigned to a shore party

unit corresponds with the unit's beach support area. Areas of responsibility are assigned by the unit to subordinate shore parties.

(3) *Mobile reserve.* Each BSA organizes within itself a mobile reserve. This force is organized for employment in the BSA.

(4) *Artillery and naval gunfire support.* While the shore party has no capability to provide for artillery or naval gunfire liaison personnel, it can arrange during the planning stage with the tactical unit ashore for concentrations of fire within the BSA and its approaches.

(5) *Antimechanized defense.* The shore party has a limited antimechanized defense capability, having available only weapons organic to the companies of the engineer amphibious battalion. Generally, prepared positions are constructed by the shore party for organic rocket launchers.

(6) *Offshore defense.* The beach party plus the landing ships and craft in the area off the beach are coordinated in the BSA defense. Plans are also coordinated with offshore transfer barges equipped with heavy caliber automatic weapons.

(7) *Defense conditions.* Generally, three conditions are given in the defense plan whereby the shore party assumes varying degrees of defensive readiness. These are—

(*a*) *Condition I.* All defensive positions are manned and supporting units alerted. All personnel in each BSA are available for defense. Mobile reserves stand by in position. Evacuation of casualties is expedited. Unloading operations cease. No vehicular traffic is permitted except in emergency or to transport casualties.

(*b*) *Condition II.* Fifty percent of personnel, other than those in security sections, are made available for defense. Mobile reserves stand by in position. Evacuation of casualties is expedited. Unloading is reduced to essential items.

(*c*) *Condition III.* Minimum defenses are manned as necessary to provide internal security and control of key terrain and routes of approach. Conduct normal shore party operations.

(8) *Chemical, biological, and radiological (CBR) defense.* Plans for CBR defense of the BSA are contained in landing force operation orders. Portions of these orders as affect the shore party are referenced.

(9) *Air defense.* Plans for air defense of the objective area are contained in an annex to the landing force operation order. The shore party has no direct control over any portion of this defense. Use of a large volume of small arms and machinegun fire delivered in a controlled manner against low flying enemy helicopters and aircraft is prescribed in the SOP of each unit. The SOP must also provide for the detection and identification of both hostile and friendly aircraft.

(10) *Guerrilla and sabotage defense.* Instructions to the shore party security section and military police section must include defensive measures for guerrilla, sabotage, and subversive activities in the basic area. Preventive and defensive measures against these type activities are of particular importance in internal defense operations. These also would include measures taken in the event of enemy airmobile or airborne attack.

6–50. Employment as Infantry

a. The engineer amphibious battalion should be assigned infantry missions only in an emergency. In amphibious operations, the battalion may be employed to reinforce portions of the landing force perimeter, or to occupy sectors near the beach. Normally, the battalion is attached to a larger infantry unit. This provides for the proper coordination of artillery, naval gunfire, and air support.

b. Engineers have many limitations when employed as infantry. Compared to an infantry battalion, the engineer amphibious battalion has relatively few supporting weapons, such as mortars, machineguns, and rocket launchers. It cannot act as infantry, even for a short period, without augmentation or support from other arms and services. Communication equipment and personnel are not sufficient for infantry operations. The training of

remain in the vicinity of the near shore in an assembly area until dispatched.

(*b*) Craft and amphibious vehicles move to a rendezvous point off the far shore.

(*c*) Waves of serials are then dispatched to the shore.

(3) *Far shore organization.* Beach organization on the far shore follows essentially the same pattern as in an amphibious operation. However, the landing force usually is supported with supplies on an on-call basis from the near shore, and the buildup on the far shore is held to a minimum consistent with the distance from one shore to the other. In most shore-to-shore operations, the requirements for shore party support are on a reduced scale on the far shore, since the beach does not require a complex organization on the same scale as that used in an amphibious operation.

c. Loading Operations. Loading of troops and equipment follows the same procedures used in normal embarkation. The shore party commander establishes a central control point, where representatives of the landing force serve as liaison officers and coordinating authorities. At each loading slot, shore party officers are stationed to expedite loading operations. These officers should be assigned in pairs to provide for 24-hour operations.

(Classification)

15 Tank M–48 .....
16 LVTP P–5 .....
17 Truck, 1,200 gal, water .....
18 Truck, 1,200 gal, fuel .....
19 Truck, w/Semitrailer, fuel, 5,000 gal .....
20 Truck, 2½ ton, Amphibious .....
21 Ambulance, ¾ ton .....
22 Other .....

_____
Officer in Charge

TAB B (Supply Point Report) to Appendix 10 (Reports) to ANNEX _____ (Shore Party) to Operation Order _____.

SUPPLY POINT REPORT

Supply Point No. _____
(Beach Color & Supply Point No.)

As of _____
(date time)

Report No. _____

(Items in tons except Water)	Col A Previous Balance	Col B Received	Col C Issued	Col D On Hand
1. CLASS I				
a. ASSAULT				
b. GARRISON				
2. CLASS II and IV				
a. CHEMICAL				
b. ENGINEER				
c. MEDICAL				
d. ORDNANCE				
e. SIGNAL				
f. TRANSPORTATION				
g. QUARTERMASTER				
3. CLASS III (Pkgd only)				
a. MO GAS				
b. AV GAS				
c. DIESEL				
d. LUBRICANTS				
4. CLASS V				
a. ARTILLERY				
b. MORTAR				
c. SMALL ARMS				
d. NUCLEAR				
e. NAPALM				

(Classification)

3000015601

(Classification)

5. TOTALS:
   a. CLASS I .....
   b. CLASS II & IV .....
   c. CLASS III .....
   d. CLASS V .....
   e. WATER (in gals) .....

6. BULK POL (in gallons)

(Col A) Nomenclature	(Col B) Previous Balance	(Col C) Received	(Col D) Issued	(Col E) Remaining in Tank Farm
a. MO GAS				
b. 80/87 Octane AV GAS				
c. 91/98 Octane AV GAS				
d. 100/130 Octane AV GAS				
e. Jet Fuel				
f. Diesel				

7. a. Items in Short Supply (List):
   (1)_____
   (2)_____
   (3)_____

   b. Losses due to enemy action:
   (1) Class I _____tons
   (2) Class II & IV _____tons
   (3) Class III_____gals
   (4) Class V _____tons

c. Remarks: (State here critical shortages of personnel, equipment and vehicles, and any unusual event that affected operation of dump.)

_____
Officer in Charge

(Classification)

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